MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Funding Statement

Annex 3: Morgan Offshore Wind Limited reports

September 2024
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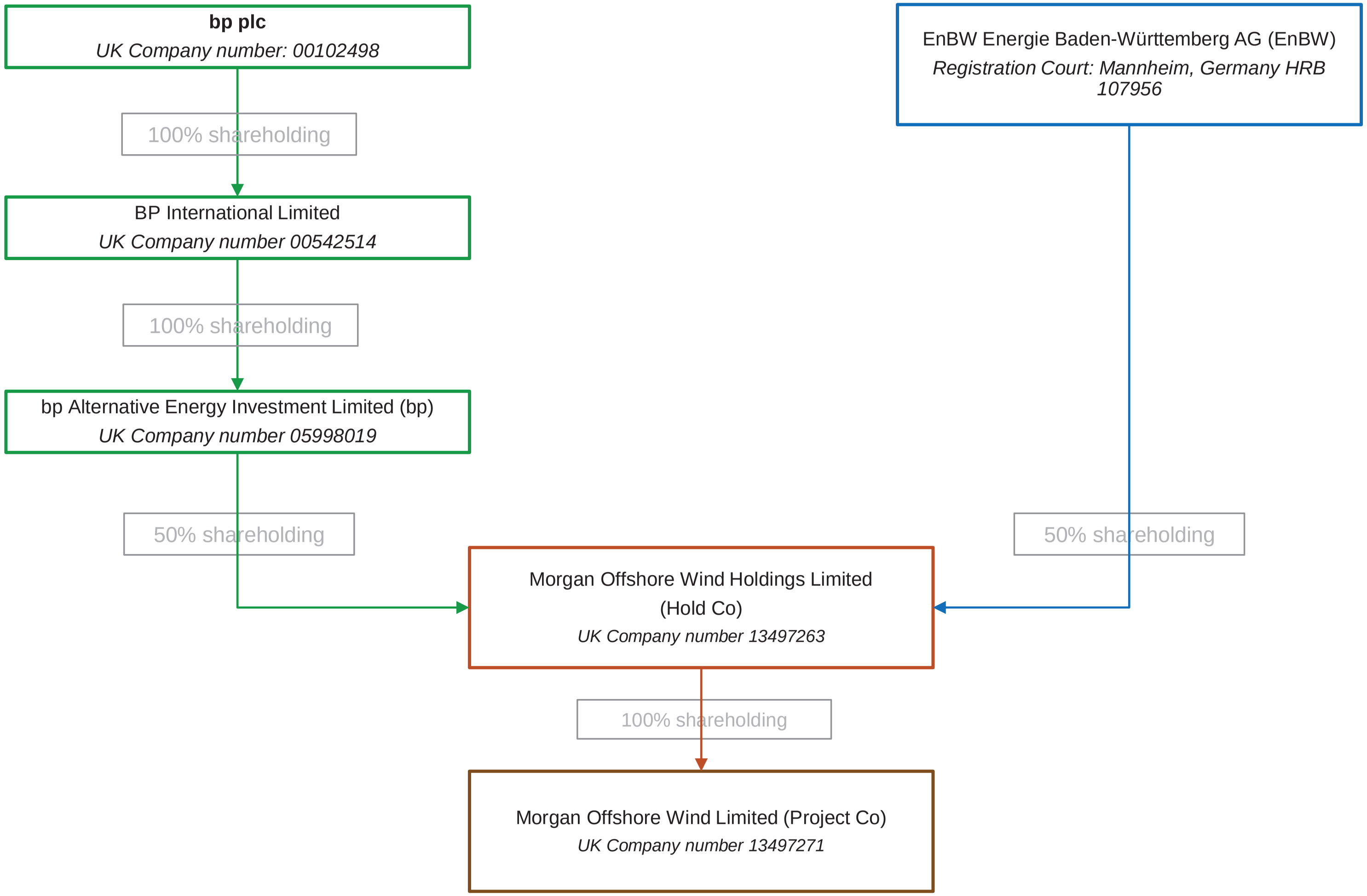
Morgan Offshore Wind Limited – Ownership structure



bp

From IOC *to* IEC

International Oil Company
to Integrated Energy Company

bp Annual Report and Form 20-F 2023

[redacted]

Growing the value of bp

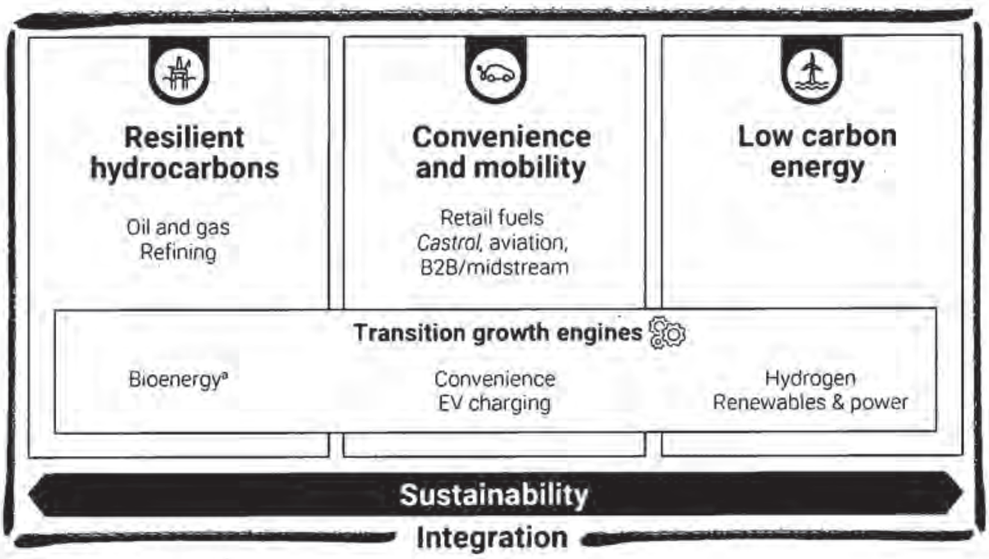
Our destination is unchanged – we are transforming from an international oil company to an integrated energy company.

Investing in today's energy system, while helping build out tomorrow's – all in service of growing the value of bp.

We are confident in our strategy and plan to deliver this as a simpler, more focused and higher value company.

Our strategy

Our strategy is focused on three key areas of activity, which include our five transition growth★ engines. Our sustainability frame and the power of integration underpins and connects it all.



Our strategy, **page 12**

Navigating this report

Read more on another page of this report

Read more online

Glossary
Words and terms marked with ★ are defined in the glossary on **page 373**

Task Force on Climate-related Financial Disclosures (TCFD)
Information that supports TCFD Recommendations and Recommended Disclosures in relation to Metrics and Targets is indicated with T.

More information

Online quick read
A concise summary of the *bp Annual Report and Form 20-F 2023*, highlighting strategy, performance and sustainability information.

bp.com/annualreport

Online reporting centre
All our bp corporate reports, including the *Sustainability Report*, the *Net Zero Ambition Progress Update* and the *bp Energy Outlook*.

bp.com/reportingcentre

a Bioenergy includes customer-facing and midstream biofuels activities that form part of convenience and mobility.

2023 at a glance

As at 31 December 2023

Scale

87,800[b]
employees
(2022 67,600)

61
countries of operation
(2022 62)

2.3 ●
million barrels of oil equivalent – upstream★ production
(2022 2.3mmboe/d)

>29,000 ●
electric vehicle charge points★
(2022 ~22,000)

21,100
retail sites★
(2022 20,650)

Performance

$15.2bn
profit for the year attributable to bp shareholders
(2022 loss $(2.5)bn)

$13.8bn ○
underlying replacement cost (RC) profit★
(2022 $27.7bn)

95.0% ●○
bp-operated upstream plant reliability★
(2022 96.0%)

96.1% ●○
bp-operated refining availability★
(2022 94.5%)

2,850 ●
strategic convenience sites★
(2022 2,400)

6.2GW ●
developed renewables to FID★ (net)
(2022 5.8GW)

$5.78/boe ●○
upstream★ unit production costs★
(2022 $6.07/boe)

Safety and sustainability

39 ●
tier 1 and 2 process safety events★
(2022 50)

0.9 ●
million tonnes of CO_2 equivalent – sustainable GHG emissions reductions★
(2022 1.5MtCO_2e)

Key

● Performance against our strategy, **page 13**

○ Key performance indicator, **page 24**

b This figure reflects new acquisitions including TravelCenters of America.

About bp

We deliver energy products and services to our customers around the world, and we plan to do so increasingly in ways that we believe will help drive the transition to a lower carbon future.

We have operations in Europe, North and South America, Australasia, Asia and Africa.

Our purpose

Our purpose is reimagining energy for people and our planet. We want to help the world reach net zero and improve people's lives.

Who we are

'Who we are' defines what we stand for at bp, building on our best qualities and those things that are most important to us. It comprises three simple beliefs that can inspire each of us at bp to be our best every day.

Live our purpose

Play to Win

Care for others

Financial reporting segment performance

At 31 December 2023, the group's reportable segments were gas & low carbon energy, oil production & operations and customers & products. Each is managed separately, with decisions taken for the segment as a whole, and represents a single operating segment that does not result from aggregating two or more segments (see Financial statements – Note 5).

Gas & low carbon energy[a]

Comprises our gas & low carbon energy businesses. Our gas business includes regions with upstream activities that predominantly produce natural gas, integrated gas and power, and gas trading. Our low carbon business includes solar, offshore and onshore wind, hydrogen and carbon capture and storage (CCS), and power trading. Power trading includes trading of both renewable and non-renewable power.

$14.1bn

replacement cost (RC) profit before interest and tax[b]
(2022 $14.7bn)

$8.7bn

underlying RC profit before interest and tax★
(2022 $16.1bn)

Segment performance, **page 39**

Our people at bp's Sunbury campus in Surrey, UK

Our people, **page 70**

Seagull oil and gas field in the UK North Sea

Resilient hydrocarbons, **page 19**

a The Azerbaijan-Georgia-Türkiye and Middle East regions have been further subdivided by asset.

b IFRS requires that the measure of profit or loss disclosed for each operating segment is the measure that is provided regularly to the chief operating decision maker. For bp, this measure of profit or loss is replacement cost profit before interest and tax, which reflects the replacement cost of inventories sold in the period and is arrived at by excluding inventory holding gains and losses★ from profit before interest and tax. Replacement cost profit for the group is not a recognized measure under IFRS. For further information see Financial statements – Note 5.

Oil production & operations[a]

Comprises regions with upstream activities that predominantly produce crude oil, including bpx energy.

$11.2bn

RC profit before interest and tax[b]
(2022 $19.7bn)

$12.8bn

underlying RC profit before interest and tax
(2022 $20.2bn)

Segment performance, **page 42**

Customers & products

Comprises customer-focused businesses, which include convenience and retail fuels, EV charging, as well as *Castrol*, aviation and B2B and midstream. It also includes our products businesses, refining & oil trading, as well as our bioenergy businesses.

$4.2bn

RC profit before interest and tax[b]
(2022 $8.9bn)

$6.4bn

underlying RC profit before interest and tax
(2022 $10.8bn)

Segment performance, **page 44**

Other businesses & corporate

Comprises innovation & engineering; bp ventures; launchpad; regions, corporates & solutions; our corporate activities and functions; and any residual costs of the Gulf of Mexico oil spill. It also includes Rosneft results up to 27 February 2022.

$(0.9)bn

RC loss before interest and tax[b]
(2022 loss $(26.7)bn)

$(0.9)bn

underlying RC loss before interest and tax
(2022 loss $(1.2)bn)

Segment performance, **page 46**

Reconciling strategic pillars to our reportable segments

At 31 December 2023 the group's reportable segments were gas & low carbon energy, oil production & operations, and customers & products. We reconcile these to our business activities and strategic pillars in the table below.

Strategic pillars	Gas & low carbon energy	Oil production & operations	Customers & products
Resilient hydrocarbons	Gas regions Gas marketing and trading	Oil regions	Refining and oil trading Bioenergy[c]
Convenience and mobility			Convenience Fuels EV charging *Castrol*, aviation, B2B/midstream
Low carbon energy	Renewables & power Hydrogen		

Denotes transition growth★ engine.

2023 progress against our strategy, **pages 18-23**
Financial segment performance in 2023, **pages 35-47**

The *Gigahub* at the NEC campus in Birmingham, UK

Convenience and mobility, **page 21**

Construction of Peacock Solar in Texas, US

Low carbon energy, **page 22**

c Includes customer-facing and midstream biofuels activities that form part of the bioenergy transition growth engine.

Chair's letter

> bp had a strong operational performance in 2023 and its strategy remains well suited to the energy transition as it unfolds.

Dear fellow shareholders,

The past year has been positive in many respects, but it has been challenging too. From the ongoing complexity of the energy transition to economic uncertainty and market volatility. Add to that, across the world conflict has continued to touch many lives – and our thoughts are with all those who have been affected.

I will start with safety – both physical and psychological – because it always comes first at bp and is fundamental in the board's discussions and decision making.

On behalf of the board, I would like to recognize the work by bp's teams on operational safety – especially in achieving a reduction in the number of our most serious process safety incidents (**page 24**). However, three people died while working for bp and this is unacceptable.

Chief executive transition

If bp made progress on safety and had a strong operational and financial performance in 2023, there were challenges too, including the change in CEO in September. However, for me and for the board, the positive here was the effectiveness of our emergency succession planning, which allowed us to appoint Murray Auchincloss immediately as interim leader, and avoid a leadership vacuum. The robust and competitive recruitment process that followed, and his performance in that process, led the board to appoint him as CEO on a permanent basis at the beginning of 2024.

The board was in full agreement that Murray was the best candidate – but this was not just our view. We sought feedback from many stakeholders including our shareholders. It was very important to have this dialogue with so many of you and I want to thank you for your advice and support.

Murray has been at bp for more than two decades and he is deeply committed to the company and its people. He has a track record of performance, he knows how to bring out the best in a team, he was one of the chief architects of the strategy – and he knows the industry inside out. I say more about this transition on **page 82**.

I am grateful to my fellow board members for their support in this process. Their constructive scrutiny of candidates allowed us to make a decision that, we believe, is right for bp.

Murray's strategic vision and focus on performance will help bp to unlock even more of our potential to compete, win and grow the value of bp. With her strong finance leadership experience, the subsequent appointment of Kate Thomson as chief financial officer in February gives the board great confidence in what can be achieved in 2024 and beyond.

Strategic direction

This leadership transition marks a new chapter for the company, but not a new strategic direction.

This year, it has become even clearer that the world needs a better, more balanced energy system. One that is secure, affordable and lower carbon. bp's strategy to go from an international oil company to an integrated energy company is designed both to help build a better system and to create value for shareholders while doing so.

bp had a strong operational performance in 2023 and its strategy remains well suited to the energy transition as it unfolds. The global move to a lower carbon energy system is not straightforward and presents both challenges and opportunities for an energy company like bp. With global markets remaining unpredictable, flexibility will be important and the strategy allows for this.

Role of culture

As bp's business activities evolve, the strength of its culture is paramount. It builds trust within bp's teams, encourages better performance and helps bp to attract and keep the best talent. A key aspect of this is its speak-up culture. bp encourages everyone to raise any concerns they have, including when they see something they think is inconsistent with the code of conduct or is unsafe or unlawful. bp tools allow them to do this safely, securely, in confidence and without fear of retaliation (see **page 72**).

Closing thanks

Every day, bp teams continue to go to work on rigs, in our refineries, in offices, at sea, at our retail sites★ and at our solar and wind installations – to mention just some of bp's many areas of operation. I want to thank them all for the considerable progress bp made in 2023.

I also want to thank Paula Rosput Reynolds and Sir John Sawers for their distinguished service. Over almost nine years, Paula has been a valued member of the board, including roles as chair of the remuneration committee (Remco) and senior independent director (SID). I am pleased that Amanda Blanc will take on the role of SID and, for an interim period, Tushar Morzaria the role of Remco chair, both with effect from the end of our annual general meeting in April 2024. Sir John's considerable work since 2015 includes supporting our safety and sustainability committee and our people and governance committee – and he has been highly regarded as chair of our geopolitical advisory council. Both will step down at the end of our annual general meeting in April 2024.

I will close with a final thank you. As I look back at this year, one of the highlights for me personally has been my meetings with you, my fellow shareholders – this year more than ever. In a time of internal change and external uncertainty, I want to thank you for your advice, your belief in bp – and for your trust and support throughout.

[redacted]

Chair
8 March 2024

$6.5bn

share buybacks announced from our 2023 surplus cash flow★

$4.8bn

total dividends distributed to bp shareholders

★ See glossary on **page 373**

Chief executive officer's letter

Dear fellow shareholders,

Thank you for your support over the last year, especially during the period of leadership transition. It is an honour to lead your company as CEO.

Our destination is unchanged. We're moving from an international oil company to an integrated energy company – IOC to IEC. We're investing in today's energy system, which is mainly oil and gas, while building out tomorrow's. And we are focused on growing the value of bp.

Nearest IFRS-equivalent measures

$15.9bn

profit for the year 2023[a]

17.8%

profit for the year 2023 attributable to bp shareholders divided by total equity at 31 December 2023[b]

$52.0bn

finance debt at the end of 2023[c]

Safety first

Safety always comes first in everything we do. In 2023 three people lost their lives while working for bp – a contractor at bpx energy and two colleagues at our newly acquired TravelCenters of America business. We will never accept this as part of doing business. Our goal is the elimination of all fatalities, life-changing injuries and the most serious process safety incidents.

In 2023 we continued to make progress on process safety, but there is always more to do. We need to constantly reinforce and build on our operating culture across the business, rigorously applying our Operating Management System★ (OMS), embedding the Lifesaving Rules and living our Safety Leadership Principles. We are determined to keep building a safer bp.

A year of delivery

In 2023 we delivered a resilient operational and financial performance, with earnings (adjusted EBITDA★) of $43.7 billion[a] and operating cash flow★ of $32.0 billion. This contributed to:

- Profit for the year attributable to bp shareholders of $15.2 billion.
- Underlying replacement cost profit★ of $13.8 billion.
- Return on average capital employed (ROACE)★ of 18.1%[b].
- Net debt★ reduced to $20.9 billion[c] – its lowest in a decade.

In turn this has allowed us to deliver competitive distributions to our shareholders:

- A 10% increase in the dividend per ordinary share (compared with the fourth quarter of 2022).
- $6.5 billion in share buybacks from our 2023 surplus cash flow★.
- 17% reduction in issued share capital between the end of the first quarter of 2021 and 31 December 2023.

We continue to maintain a disciplined financial frame. The strength of our underlying financial performance, the disciplined approach to strengthening the balance sheet over the last few years, and our confidence in our drive towards 2025 gave us the capacity to update the financial frame earlier this year. As we announced in February 2024, we have tightened our capital expenditure★ guidance and enhanced our share buyback guidance, all while continuing to prioritize a strong balance sheet and strong investment grade credit rating.

Strategic progress

We are four years into our journey from IOC to IEC. Our strategy is based on the judgement that oil and gas will be needed for decades, but that a global shift to lower carbon energy is well underway. Since the pace of that shift is uncertain we will continue to be flexible and pragmatic, responding to changing demand and societal need, as we did in February 2023.

Our strategic progress in 2023 included:

- Oil and gas production growth of 2.6%, underpinned by strong growth from bpx energy and good management of our base business.
- Strong underlying year-on-year growth in our convenience gross margin★.
- EV charge points★ up 35% globally, energy sold up 150%.
- Biogas supply volumes★ up 80%, biofuels production★ up 18%.
- 21.1GW net growth in our renewables pipeline.
- 1.1mtpa net growth in our hydrogen pipeline★.
- Completed the planned implementation of methane measurement approach across our operated upstream oil and gas assets.

a Adjusted EBITDA for the group is a non-IFRS measure and its nearest IFRS-equivalent measure is profit for the year 2023.
b ROACE is a non-IFRS measure and its nearest IFRS measures of numerator and denominator are profit for the year 2023 attributable to bp shareholders of $15.2 billion and total equity at the end of 2023 of $85.5 billion respectively.
c Net debt is a non-IFRS measure and its nearest IFRS-equivalent measure is finance debt at the end of 2023.

"As we drive to 2025, we will focus on executing to deliver value."

Growing the value of bp

The last few years were about generating options. As we drive to 2025, we will focus on executing to deliver value. To guide that effort, we've set out six near-term priorities for bp. These are: to keep improving safety and reducing emissions. To make the company simpler and more focused. To become more efficient by putting technology and digitization at the heart of what we do. To progress our growth projects. To invest to maximize returns. All while maintaining our commitment to shareholder distributions.

bp is a great company. We have high-quality resources, outstanding science and engineering, strong partnerships, a world-class trading capability, and above all great people.

I believe very few companies can deliver what we offer. It's why I've never been more confident that we can win in this transition as a simpler, more focused and higher value bp.

Last but not least, thank you for your continued support, and a big thank you to the whole bp team for working incredibly hard in what was at times an uncertain year.

[redacted]

Murray Auchincloss
Chief executive officer
8 March 2024

Six priorities to grow the value of bp

1. Improve safety and reduce emissions.
2. Drive a focus in the business on activities that create the most value.
3. Deliver the next wave of efficiency – including technology and global capability hubs.
4. Deliver the next set of growth projects that provide growth through to 2030 and beyond.
5. Optimize ROACE through disciplined investment allocation.
6. Grow shareholder returns.

Read more: **page 29**

★ See glossary on **page 373**

Energy markets

The operating environment

bp operates across volatile energy markets. Here we discuss broader economic trends we have observed that influence our sector as a whole.

Through 2023 energy markets and prices were volatile as demand and supply flows continued to adjust to post-COVID-19 recoveries in demand and disruptions caused by the Russia-Ukraine war. Concerns about energy security and emissions continued to boost renewables as the world transitions towards a lower carbon future.

Economic growth was uneven across regions, as past increases in energy prices and steep rises in interest rates had varying effects in different countries.

Inflation rates fell significantly as the effects of past increases in food and energy prices on annual inflation eased. However, inflation across much of the world remained above central banks' targets, and a combination of squeezed incomes and the sharp tightening in monetary policy contributed to a below-average growth rate of around 3% for the global economy in 2023.

Growth in advanced economies was 1.5%[a], with weakness in the euro area contrasting with continued robust growth in the US. Emerging economies grew by around 4%[a], with China experiencing a rebound in growth to 5.2%[a] as it emerged from COVID-19 lockdowns. Expansion of other emerging economies was dampened by higher interest rates and weak demand for their exports.

Oil

Oil prices were elevated across much of 2023, supported by a combination of robust oil demand growth and OPEC production cuts. Brent averaged $83/bbl in 2023, down from $101/bbl in the previous year. Global oil demand grew by 2.3mmb/d to 101.7mmb/d in 2023[b]. The structural post-COVID-19 rebound of mobility (jet and gasoline), including a significant increase in Chinese oil demand of 1.7mmb/d[b], supported the well-above-trend growth.

A combination of official and voluntary cuts caused OPEC+ production to fall by 390kb/d[b] in 2023, led by Saudi Arabia, which accounted for a 900kb/d contraction versus 2022[b]. However, these reductions were offset by strong growth in non-OPEC+ supplies, which increased by 2.3mmb/d in 2023[b], with the US accounting for two-thirds of that increase[b].

Natural gas

A combination of a relatively warm European winter in 2022-23 and muted European gas demand caused European and Asian natural gas prices to fall early in 2023. Even so, European gas prices in 2023 were still double their 2015-2019 average level[c] following the loss of the majority of Russian pipeline gas supply to the EU in 2022.

Asian liquefied natural gas (LNG) prices followed European gas prices lower in 2023, and moved back to trading predominantly at a premium to European prices in a reversal of the trend seen in 2022. The increased demand for LNG cargoes following the loss of Russian gas pipeline supply to the EU, combined with below-average growth in new LNG supply capacity in 2023, meant the global LNG market remained sensitive to supply risks, for example reacting strongly to potential outages in Australia.

In the US, Henry Hub (HH) gas prices averaged 61%[d] lower than in 2022 as the growth in dry natural gas production outpaced demand. Lower HH prices incentivized coal-to-gas switching in the power sector, and heightened demand for cooling during summer heatwaves helped to avoid storage congestion. US gas storage stocks were 13%[e] above historical average levels at the end of 2023. In response to the lower prices, the number of US gas rigs operating declined by a third from its peak in 2022[f].

Refining marker margin

We use a global refining marker margin (RMM)★ to track the refining margin environment. Global RMM fell from the record highs reached in 2022, when Russia's invasion of Ukraine caused significant disruption to refining operations and established trade flows. RMM values averaged $25.8/bbl, $7.3/bbl lower than in 2022[g], mainly due to elevated refinery output, including as a result of new capacity additions.

Power and renewables

Total solar and wind capacity additions in 2023 were expected to have reached around 380GW (on alternating current basis), a record increase historically, and more than 100GW higher than in 2022[h], with the increase driven mainly by China and solar photovoltaic (PV) deployment. The ongoing effects of the Russia-Ukraine war have increased countries' focus on their energy security, supporting greater deployment of renewable energy capacity.

Higher commodity prices, rises in interest rates and continued supply chain bottlenecks led to some increases in costs for solar and wind power in several countries. The offshore wind sector was particularly affected, and some projects were cancelled as their economic viability was eroded. However, we saw governments in many key offshore wind markets remain committed to achieving their offshore wind targets and developing their domestic offshore supply chains, providing continued support to the sector.

a IMF World Economic Outlook, October 2023 update.
b IEA Oil Market Report, January 2024.
c Platts Dutch TTF Day Ahead price.
d Platts Henry Hub cash price.
e Weekly Natural Gas Storage Report, EIA.
f Baker Hughes Rig Count.
g The RMM may not be representative of the margin achieved by bp in any period because of bp's particular refinery configurations and crude and product slates. In addition, the RMM does not include estimates of energy or other variable costs.
h IEA Renewables 2023 report; PV capacity additions converted from DC to AC basis by dividing by 1.25.

Hydrogen and carbon capture and storage

There continues to be widespread recognition of the need to use low carbon hydrogen and hydrogen-based fuels to help decarbonize harder-to-abate sectors of the global economy. However, high costs and the slow pace of enabling policy have caused increased challenges for the sector. While the sector-wide project pipeline for production of low-emissions hydrogen operational by 2030 has grown significantly, only a very small amount is either currently operational or under construction.

Green hydrogen★ costs have increased significantly, driven by higher renewable costs, elevated interest rates and competition for renewable electricity. Blue hydrogen★ costs, while also impacted by high inflation, are primarily driven by natural gas costs, which have subsided since the end of 2022.

Blue hydrogen costs are expected to be lower than green hydrogen costs in many countries through the rest of this decade and beyond. More subsidies are needed to close the gap between the higher costs of green hydrogen and customers' willingness to pay to switch away from incumbent fuels.

The global pipeline of carbon capture and storage (CCS) projects[i] continued to grow in 2023. But only a relatively small number of projects are actually operating or under construction and, based on past relatively low project completion rates, the current project pipeline appears insufficient to meet the CCS deployment rates consistent with Paris-consistent scenarios[i].

2.3%

year-on-year increase in global oil consumption in 2023[b]

0.2%

estimated increase in global gas consumption in 2023[c]

45%

expected year-on-year increase in annual solar and wind capacity additions in 2023[h]

Market activity	2023	2022
Global oil consumption[b]	**101.7mmb/d**	99.5mmb/d
Global oil production[b]	**102.0mmb/d**	100.1mmb/d
Natural gas consumption[j]	**4,071bcm**	4,061bcm
Natural gas production[j]	**4,081bcm**	4,094bcm
Dated Brent average[k]	**$82.64/bbl**	$101.32/bbl
West Texas Intermediate (WTI)★ average[l]	**$77.67/bbl**	$94.58/bbl
Urals average[m]	**$61.79/bbl**	$74.16/bbl
Henry Hub average[d]	**$2.53/mmBtu**	$6.41/mmBtu
Dutch Title Transfer Facility (TTF)★ average[e]	**40.5 euros per MWh ($12.8/mmBtu)**	123.1 euros per MWh ($37.7/mmBtu)
Japan-Korea (Asian) LNG average[n]	**$13.8/mmBtu**	$34.0/mmBtu
Refining marker margin[g]	**$25.8/bbl**	$33.1/bbl[o]

i Projects include capture projects either on a standalone basis or as part of a hub (sharing transport and storage facilities).
j IEA Medium Term Gas Report 2023.
k Refinitiv Data Service (Dated Brent spot price).
l Refinitiv Data Service (West Texas Intermediate).
m Refinitiv Data Service (Urals CIF Rotterdam).
n Platts JKM spot price.
o The 2022 RMM reflects changes in bp's portfolio.

★ See glossary on **page 373**

Energy outlook

The *bp Energy Outlook 2023* explored the trends and uncertainties surrounding the energy transition out to 2050. The Outlook helps inform bp's core beliefs about the energy transition.

The scenarios within it explore the possible implications of different judgements and assumptions concerning the nature of the energy transition. The uncertainty associated with the transition is substantial, and these scenarios are not predictions of what is likely to happen or what bp would like to see happen. We use the output from these scenarios to inform our strategic thinking.

New momentum ··o··

New momentum captures the broad trajectory of the current global energy system. It places weight on the marked increase in global ambition for decarbonization in recent years, as well as on the manner and speed of decarbonization seen over the recent past. CO_2-equivalent (CO_2e) emissions from energy and industrial processes peak in the 2020s, and by 2050 are around 30% below 2019 levels. This scenario is not considered to be a Paris-consistent pathway[b].

Net zero --o--

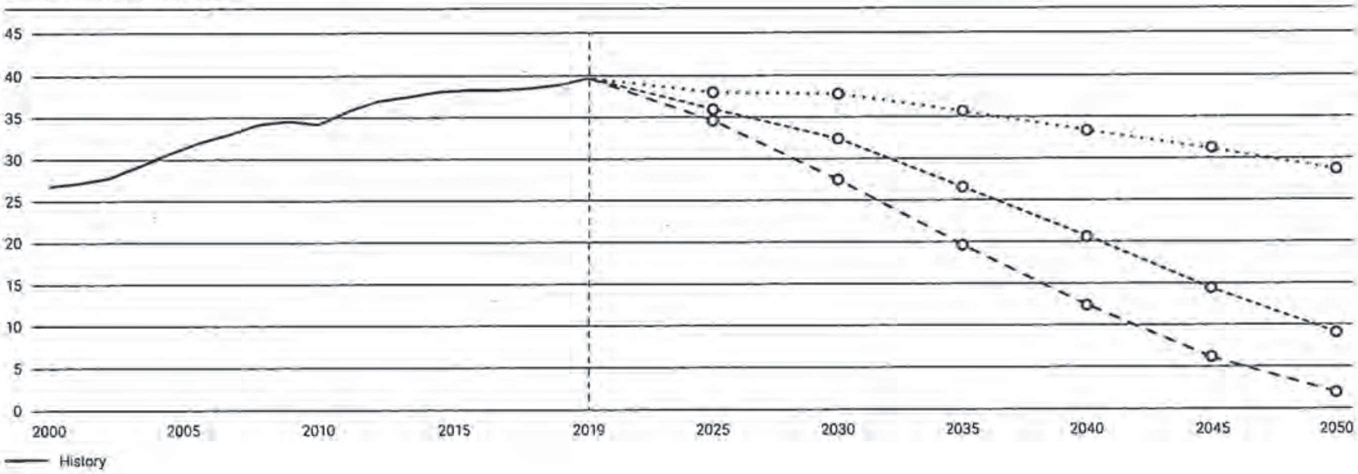
This scenario represents a shift in societal behaviour and preferences which drive gains in energy efficiency and the adoption of low carbon energy, such that global energy system CO_2e emissions fall by around 95% by 2050 relative to 2019 levels. This scenario is considered consistent with the Paris goals, broadly aligning with pathways maintaining global temperature rises below 1.5°C.

Accelerated – o –

Accelerated explores how the energy system might change if the world collectively takes action for CO_2e emissions to fall by around 75% by 2050 relative to 2019 levels. This scenario is considered consistent with the Paris goals, broadly aligning with well-below-2°C pathways.

Three scenarios to explore the energy transition

Carbon emissions Gt of CO_2e[a]



a Carbon emissions include CO_2 emissions from energy use, industrial processes, natural gas flaring and methane emissions from energy production.

b For more information on Paris-consistent pathways, see **page 14**.

bp Energy Outlook 2023 updates

In January 2023 we published the *bp Energy Outlook 2023 (2023 Outlook)*. This was updated from the 2022 *Outlook* to consider two major developments: the Russia-Ukraine war and the passing of the US Inflation Reduction Act (IRA).

The Russia-Ukraine war was judged likely to have a persistent effect on the future path of the global energy system, causing a change in the composition of global energy supplies, reducing economic growth, and increasing countries' focus on energy security. Also modelled was the IRA, which included a package of largely supply-side measures supporting low carbon energy sources and decarbonization technologies in the US.

In July 2023 we released an additional chapter of the *bp Energy Outlook*, *'How energy is used'*, which considers the outlook for the end uses of energy over the next 30 years. This chapter discusses energy use in the transport, industry and buildings sectors of the global economy.

It showed that, in all three scenarios outlined on **page 10**, electricity increasingly replaces oil as the main energy carrier for light road vehicles in the transport sector. Heavier vehicles also electrify, although hydrogen and biomethane also play a role in some applications. Industry also gradually electrifies, but at a slower rate than transport due to the difficulties of electrifying high-temperature heat, with heavy industry also making use of low carbon hydrogen and bioenergy. In the buildings sector, growth in overall energy demand slows as space heating and cooking appliances become more efficient and energy conservation increases. The share of electricity in the energy used by buildings rises as fossil fuel boilers are replaced by heat pumps and emerging economies phase out traditional biomass.

We plan to continue to update the *bp Energy Outlook* in response to new developments in the energy transition.

bp.com/energyoutlook

Scenarios for strategic decision making

We use scenarios to inform strategy, manage risk, and improve decision making.

Some scenarios start from today and project forward over a timeframe in which the current structure of the energy system helps to inform the pace and nature of the transition path. Others start in the future, breaking free from the inherent inertia in the energy system, and look back to the present from that new perspective.

In thinking about appropriate scenarios to inform our strategy, we used both approaches.

How scenarios inform our strategy

The use of scenarios described in the *2023 Outlook*, and those from other organizations, aids our understanding of the energy transition and helps us to think about how different outcomes might impact our strategy.

The use of a broad range of scenarios to inform our strategy supports our efforts to make it robust and resilient to the range of uncertainty we face.

By considering various time horizons, we can identify key milestones or signposts which might emerge over the next five, 10 or 30 years and inform our view of the key sources of uncertainty affecting the global energy system.

We actively monitor for changes in the external environment and refresh or review the scenarios as needed in response to these signals, as we did with the Russia-Ukraine war and the impact of the IRA in the *2023 Outlook*.

For the purposes of testing the resilience of our strategy to the range of uncertainty in the energy transition, we have used scenarios drawn from other credible sources such as the World Business Council for Sustainable Development (WBCSD) 'Climate Scenario Analysis Reference Approach for Companies in the Energy System', the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA).

Read more on our resilience analysis and the outcome of that work on **page 64**

How we create scenarios

We quantify a range of scenarios in the *2023 Outlook* using our global energy modelling system. This comprises a suite of models to help us understand the supply and demand dynamics of the global energy system.

The modelling framework uses historical data based on the Energy Institute's Statistical Review of World Energy[c], the IEA's data and a range of other data sets.

Each scenario is determined by a set of key assumptions, including population and economic growth, pace of technological change, resource constraints and government policies. These are informed by expert views from external organizations including the United Nations, Oxford Economics and Rystad Energy. We benchmark our scenarios against external organizations including the IEA, the IPCC, IHS Markit and the Network for Greening the Financial System (NGFS).

The modelling techniques used vary by sector and include a combination of econometric modelling, least-cost optimization, adoption curves and consumer choice modelling.

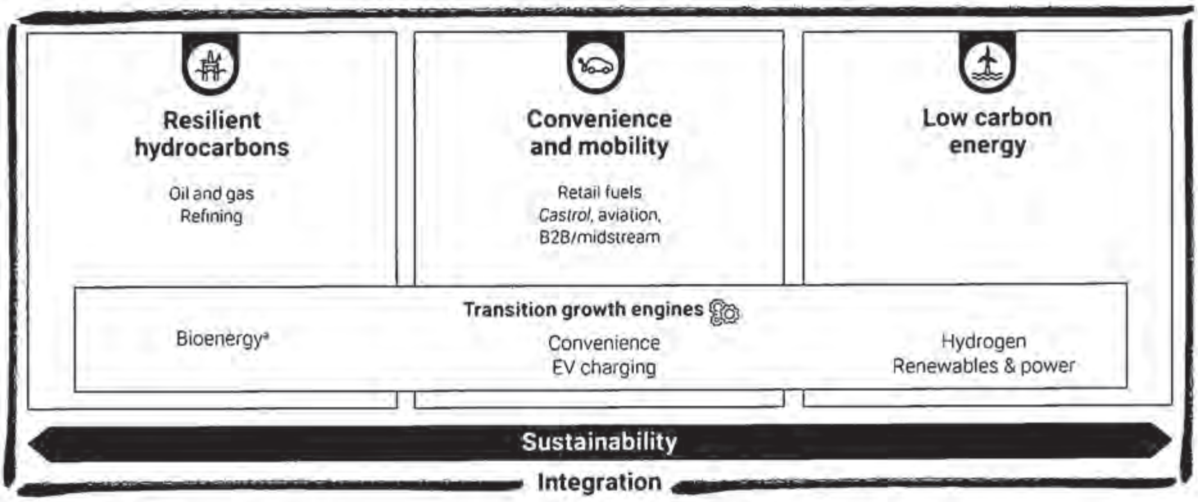
c Production of the Statistical Review of World Energy passed from bp to the Energy Institute in 2023. It is available online energyinst.org/statistical-review

Our strategy in action

Transforming to an integrated energy company

We are investing in today's energy system – while helping build out tomorrow's. All in service of growing the value of bp.

Three strategic pillars
Our strategy is focused on three key areas of activity.



Sustainability

Embedded across our strategy is our sustainability frame, which sets out our aims for getting to net zero, improving people's lives and caring for our planet.

Integration

Our trading and shipping business continues to be at the core of integrating and optimizing across integrated value chains.

Growth to 2030[b]
We aim to generate adjusted EBITDA★ of $53-58 billion[c] in 2030.

The aims underpinning this include:
- Growing adjusted EBITDA from resilient hydrocarbons to $41-44 billion[c].
- More than doubling adjusted EBITDA versus 2019 in convenience and mobility to $9-11 billion[c].
- Delivering $2-3 billion[c] of adjusted EBITDA from low carbon energy, while establishing the foundations of a material business for the decades to come.
- Delivering between $10-12 billion[c] of adjusted EBITDA from transition growth★ engines.

Examples of progress against our strategy in 2023, **pages 18-23**
Sustainability at bp, **page 48**

Key
Denotes transition growth engine
TCFD Recommendations and Recommended Disclosures

a Bioenergy includes customer-facing and midstream biofuels activities that form part of convenience and mobility.
b This does not form part of bp's Annual Report on Form 20-F as filed with the SEC.
c At Brent $70/bbl 2021 real and bp planning assumptions, and at the upper end of the expected capital expenditure★ range for the group, the relevant strategic pillar or transition growth engine as applicable.

Performance against our strategy

These are strategic targets and aims we have set against our strategic pillars out to 2025 and 2030.

	Metrics	2023 performance	2025 target	2030 aim
Resilient hydrocarbons	Upstream★ production[d]	2.3mmboe/d **2022** 2.3mmboe/d	~2.3mmboe/d	~2mmboe/d
	bp-operated upstream plant reliability★	95.0% **2022** 96%	96%	>96%
	Upstream unit production costs★	$5.78/boe **2022** $6.07/boe	~$6/boe	–
	bp-operated refining availability★	96.1% **2022** 94.5%	~96%	>96%
	Biofuels production★	32kb/d **2022** 27kb/d	~50kb/d	~100kb/d
	Biogas supply volumes★	22mboe/d **2022** 12mboe/d[e]	~40mboe/d	~70mboe/d
	LNG portfolio★	23Mtpa **2022** 19Mtpa	25Mtpa	30Mtpa
Convenience and mobility	Strategic convenience sites[f]★	2,850 **2022** 2,400	~3,000	~3,500
	Customer touchpoints★ per day	>12 million **2022** ~12 million	>15 million	>20 million
	Electric vehicle charge points★	>29,000 **2022** ~22,000	>40,000	>100,000
Low carbon energy	Hydrogen production (net)	–	–	0.5-0.7Mtpa
	Developed renewables to final investment decision★ (net)	6.2GW **2022** 5.8GW	20GW	50GW
	Installed renewables capacity★ (net)	2.7GW **2022** 2.2GW	–	~10GW

d Relative to 2019, we expect our hydrocarbon production to be around 25% lower by 2030 reflecting active management and high-grading of the portfolio, including divestment of non-core assets.
e 2022 excludes Archaea Energy.
f Reported to the nearest 50.

★ See glossary on **page 373**

Pursuing a strategy that is consistent with the Paris goals

What we mean by Paris-consistent

The 2019 CA100+ resolution★ requires us to disclose the strategy that the board considers in good faith to be consistent with the Paris goals.

When we refer to 'consistency with Paris' we consider this to mean consistency with the world meeting the temperature goal set out in Articles 2.1(a) and 4.1 of the Paris Agreement on Climate Change★.

The Paris goals, which we support, were reaffirmed under the UAE Consensus at COP28 in December 2023, by the Sharm el-Sheikh Implementation Plan agreed by the Parties at COP27 in November 2022, and the Glasgow Climate Pact agreed by the Parties at COP26 in November 2021.

We believe the world is on an unsustainable path, and the carbon budget to meet the Paris goals is running out.

bp's strategy is informed by these considerations. It is designed to create long-term value for shareholders, while enabling delivery of our net zero ambition – to become a net zero company by 2050 or sooner, and to help the world get to net zero. It is designed to be resilient to the uncertainty of the energy transition across many different potential pathways, including various Paris-consistent pathways.

In the *bp Annual Report and Form 20-F 2021* we set out, based on **three key principles**, why the board considers our strategy to be consistent with the Paris goals. Here we set out, on the same three grounds, why the board continues to consider this to be the case.

Informed by Paris-consistent energy transition scenarios

The speed and nature of the energy transition is uncertain, and so we consider a range of scenarios from multiple sources including the *bp Energy Outlook* to inform our beliefs about the energy transition and to develop and test our strategic thinking. This helps to reinforce our confidence in the robustness and resilience of our strategy to the range of uncertainty we face.

We are confident that our approach is science-based. We see the Intergovernmental Panel on Climate Change (IPCC) as the most authoritative source of information on the science of climate change, and we use it and other sources to inform our strategy. The IPCC highlights that there are a range of global pathways by which the world can meet the Paris goals, with differing implications for regions, industry sectors and sources of energy.

The *bp Energy Outlook 2023* updated the 2022 Outlook to reflect the significant developments in global energy markets over the preceding year, including the possible impact of the Russia-Ukraine war on the pace of the energy transition. It includes three main scenarios – two of which we regard as Paris-consistent (Accelerated and Net Zero) – that we use to inform our strategy.

Energy outlook **page 10** and **bp.com/energyoutlook**

Strategic resilience

We believe our strategy positions bp for success and resilience in a Paris-consistent world – a world that is progressing on one of the many global trajectories considered to be Paris-consistent, and ultimately meets the Paris goals.

The strategy diversifies bp's portfolio and business interests, reducing the risk that challenges facing a single business area might adversely affect bp's strategic resilience.

In addition, within the inevitable constraints associated with factors such as long-term capital investments, contractual commitments and organizational capabilities at any given time, bp's ability to maintain its strategic resilience rests, in part, on the governance used to keep the strategy and associated targets and aims under review in light of new information and changes in circumstances.

In our climate-related financial disclosures on **page 63**, we describe how we have conducted an analysis to test our view of the resilience of our strategy to different climate-related scenarios, using the update on strategic progress presented in February 2023. This includes scenarios that are classified by the World Business Council for Sustainable Development (WBCSD) to be consistent with well-below 2°C and 1.5°C outcomes[a].

As further explained on **page 64**, while the results of any such analysis must be treated with caution overall, this resilience test again reinforced our confidence in the continued resilience of our strategy to a wide range of ways in which the energy system could evolve throughout this decade, including in scenarios consistent with limiting temperature rise to 1.5°C.

The analysis also again highlighted that, while WBCSD data may point towards a broad directional correlation between oil price and the temperature goal with which scenarios are associated, there is considerable uncertainty as to the extent of this correlation. This is demonstrated by the range within, and overlap between, the prices indicated for each scenario family.

In the version of the WBCSD catalogue used for the analysis, the lowest oil price is associated with a 1.5°C scenario; however a number of the 1.5°C and well-below 2°C scenarios have oil prices in 2030 that are substantially higher. And when compared to bp's own central oil price case planning assumption for 2030, the oil price in a number of the well-below 2°C scenarios is also higher, supporting our view that our oil price planning assumption is broadly consistent with Paris-consistent scenarios.

a Our 2023 analysis used data from the WBCSD Climate Scenario Catalogue version 2.0, published on 31 March 2023 and downloaded on 1 February 2024, which includes scenarios considered to be consistent with well-below 2°C and 1.5°C outcomes.

Contributes to net zero

We believe that our strategy enables bp to make a positive contribution to the world achieving net zero greenhouse gas (GHG) emissions and meeting the Paris goals – outcomes which we believe to be in the best interests of bp as well as beneficial to society generally.

We see huge opportunity in the energy transition – the transformation of the energy system that we believe to be a necessary feature of the world's efforts to meet the Paris goals. There are many ways a company at the heart of the energy sector can make a meaningful contribution to the world getting to net zero. In addition to investing in and scaling our own lower carbon businesses, these include: policy advocacy and seeking to use the company's influence with trade associations that conduct climate-related advocacy; low carbon collaboration and support for others in their own decarbonization efforts (such as cities and corporates); and making venturing investments in promising new businesses and technologies that have the potential to contribute to the energy transition. bp seeks to advance these areas through our aims in support of our net zero ambition, including aims 6-10 which are focused on activities which can help the world get to net zero, see **page 50**.

And, as we pursue our strategy, our diversification and the growth of our low carbon businesses may also contribute to helping the world get to net zero. Some ways of contributing are more readily measured by quantitative metrics than others – but all can be important, whether or not they translate into GHG reductions for bp. For example, in Teesside in the UK, we continue to work to advance components of the East Coast Cluster – a vision for decarbonizing local heavy industries at scale, with CO_2 from their emissions taken offshore for permanent storage through Northern Endurance Partnership's carbon capture and storage facilities.

In 2023 two bp-led lower carbon projects, Net Zero Teesside Power and H2Teesside, part of the East Coast Cluster, were chosen to proceed to negotiations for government support. bp and Equinor were awarded a carbon storage licence by the North Sea Transition Authority, which will enable the development of further CO_2 storage sites. Together with Equinor we now hold four storage licences on behalf of the Northern Endurance Partnership. There is potential to store up to 23 million tonnes of CO_2 a year in the southern North Sea by 2035.

As a further illustration, in terms of low carbon investment★, by 2030 we aim to increase to 50GW the amount of developed renewables to FID★, supported by the capital expenditure★ we plan to invest in our transition growth★ engines.

This aim supports the Paris goals by increasing the low carbon options available to energy consumers. However, it does not reduce our Scope 1, 2 or 3 emissions. And it may not result in a decrease in the overall carbon intensity of bp's sold products, because that is dependent on the extent to which we – rather than another party such as a buyer of the developed project – market the resulting renewable power, which is a commercial consideration. Where we do not directly sell that power, our development of the renewables is effectively 'invisible' in terms of our GHG metrics.

As another example, our aim 6 is to more actively advocate for policies that support net zero, including carbon pricing. Helping policymakers to design and put in place low carbon policies that support the transition to net zero can help deliver our strategy and capitalize on the huge opportunities associated with achieving the Paris goals, but the benefit of such advocacy, if successful, extends well beyond any implications for bp's own GHG metrics. That is because well-designed low carbon policies can also advance the decarbonization of a whole economy – something potentially of far greater impact than anything a single company can achieve through its own portfolio. We publish examples of our activity in support of aim 6 online at **bp.com/advocacyactivities**.

Responding to increased shareholder interest in Paris consistency

In 2019 the board recommended that shareholders support a special resolution requisitioned by Climate Action 100+ (CA100+) on climate change disclosures. The CA100+ resolution passed with more than 99% of votes cast. This is the fifth year we have included responses throughout the annual report and we have adopted a similar approach to previous years.

The CA100+ resolution, which includes safeguards such as protections for commercially confidential and competitively sensitive information, is on **page 373**. Key terms related to this resolution response are indicated with ★ and defined in the glossary on **page 373**. These should be reviewed with the following information.

Element of the CA100+ resolution	Related content	Where
Strategy that the board considers in good faith to be consistent with the Paris goals.	Our strategy and business model Pursuing a strategy that is consistent with the Paris goals	12 & 16 14
How bp evaluates each new material capex investment★ for consistency with the Paris goals and other outcomes relevant to bp strategy.	Our investment process	30
Disclosure of bp's principal metrics and relevant targets or goals over the short, medium and long term, consistent with the Paris goals.	Key performance indicators Sustainability: net zero targets and aims See 'TCFD Metrics & Targets' for an overview	24 49 68
Anticipated levels of investment in: (i) Oil and gas resources and reserves. (ii) Other energy sources and technologies.	Financial frame: disciplined investment allocation Investment in non-oil and gas	28 31
bp's targets to promote operational GHG reductions.	Sustainability: net zero targets and aims (in table)	49
Estimated carbon intensity of bp's energy products and progress over time.	Sustainability: aim 3	49
Any linkage between above targets and executive pay remuneration.	Directors' remuneration report 2023 annual bonus outcome 2024 remuneration policy	105 114 119

★ See glossary on **page 373**

Our business model

What makes us *different*

We believe we have the scale, global presence and expertise to navigate complex markets and manage increasingly integrated energy systems.

Our purpose

Guiding what we do and how we operate, our purpose is:

Reimagining energy
for people and our planet

Our strategy

Transforming to an integrated energy company.

Resilient hydrocarbons | **Convenience and mobility** | **Low carbon energy**

Strategy, **page 12**
Creating value through integration, **pages 18**, **20** and **22**

People and resources[a]

These are some of the people and resources in our business model that support how we create and preserve value for our stakeholders.

Incumbent capability

~10,900
engineers

~800
employees on graduate schemes

Sustainability at bp, **page 48**

Research and development

$298m
invested in research and development

~2,500
granted and pending patent applications held by bp and its subsidiaries

page 197

Energy sector experience

>110 years
in energy

14 years
of *bp Energy Outlook* publications

The operating environment, **page 8**

Financial resources

$16.3bn
capital expenditure★

$32.0bn
operating cash flow★

Group performance, **page 35**

Energy resources

6,759mmboe
proved hydrocarbon reserves for the group[b]

6.2GW
developed renewables to FID★ (net)

Gas & low carbon energy, **page 39**
Supplementary information on oil and natural gas, **page 247**

a Data as at 31 December 2023.
b On a combined basis of subsidiaries and equity-accounted entities. See page 345 for more information on bp's oil and gas reserves including the impact of events occurring after the end of the reporting period.

Our business groups

This is how we are organized to deliver our strategy and deliver long-term shareholder value. Our three business groups are supported by four integrators to facilitate collaboration and unlock value (innovation & engineering; regions, corporates & solutions; strategy, sustainability & ventures; and trading & shipping), and three teams that serve as enablers of business delivery (finance; legal; and people & culture).

Gas & low carbon energy

Integrating our existing natural gas capabilities with power trading and growth in low carbon businesses and markets, including wind, solar, hydrogen and carbon capture and storage.

page 39

Production & operations

The operational heart of bp, producing the hydrocarbon energy and products the world wants and needs – safely and efficiently.

page 42

Customers & products

Focusing on customers as the driving force for innovating new business models and service platforms to deliver the convenience, mobility and energy products and services of today and the future.

page 44

Alignment with our strategic pillars

How we reconcile our strategic pillars to our reporting segments and business groups, **page 3**

Delivering value for stakeholders[a]

We are committed to delivering long-term value for stakeholders.

Investors and shareholders

Includes our institutional and retail investors.

$4.8bn

total dividends distributed to bp shareholders
(2022 $4.4bn)

Employees

Our 87,800 people worldwide.

73%

employee engagement score from the 'Pulse annual' employee survey
(2022 70%)

page 71

Society

The people, businesses and environment in the communities where we work.

$117m

supporting additional initiatives to benefit communities
(2022 $93m)

page 53

Customers

Including end-use consumers, B2B customers, and distributors.

>12m

customer touchpoints★ per day
(2022 ~12m)

Governments and regulators

In the countries where we have existing or planned activities.

$11.9bn

corporate income tax and production tax paid
(2022 $12.5bn)

bp.com/tax

Partners and suppliers

Includes relationships with academia, industry and cities.

$152bn

in payments to suppliers for goods and services
(2022 $174bn)

page 70

★ See glossary on **page 373**

Resilient hydrocarbons

A resilient oil and gas business is an essential part of our transformation to an integrated energy company. Our focus remains on safely delivering value, maximizing returns and cash flow, and reducing emissions.

Transition growth★ engines

Bioenergy: Demand from our customers for bioenergy is growing. That's why we are working to scale up our established bioenergy business. We are increasing our biogas supply, growing our biofuels production★, helping our customers decarbonize and expanding our trading capabilities.

Renewable gas at Archaea Energy

We started up our first Archaea Modular Design (AMD) plant in Indiana, US in October 2023. AMD allows the plant to be built on skids with interchangeable components for faster builds.

The plant converts landfill gas (a form of greenhouse gas) by capturing it from landfill and converting it to electricity, heat or renewable natural gas (RNG). This helps to improve local air quality and provide lower carbon fuel for homes, businesses and transportation.

It is the first of 15-20 new plants we aim to bring online per year through 2025, with Archaea Energy production volumes contributing to our 2025 target of around 40mboe/d of biogas supply volumes★ (see **page 13**).

"This is a powerful step forward in our net zero journey to capture landfill emissions and provide customers with lower carbon fuel."

Starlee Sykes
CEO Archaea Energy

3,200scfm

Medora RNG plant processing capacity

Archaea Energy RNG plant in Medora, Indiana, US

Bingo goes *online*

Our onshore oil and gas business, bpx energy, invested $1.4 billion in Texas's Permian Basin in 2023. In August we completed our second central processing facility, Bingo. This follows Grand Slam, which came online in 2021.

Bingo in the Permian Basin, Texas, US

Methane *certification*

We became the first energy major to verify the methane intensity★ of its entire US onshore operated natural gas portfolio, with bpx energy gaining certification from MiQ, an independent not-for-profit, in March 2023.

The certification is independently audited and gives us a better understanding of methane intensity and source emissions, helping us develop plans to reduce emissions further.

Our aim 4 progress, **page 49**

Major project start-ups

We started up four major oil and gas production projects in 2023.

We expect these projects to contribute more than 50% towards our target of around 200mboe/d from ten new major projects by 2025.

Mad Dog Phase 2, US

We started up our fifth bp-operated production platform, Argos, in the Gulf of Mexico in April 2023. Our new facility is helping to increase production in the Gulf and has the capacity to produce up to 140mmboe/d gross.

KG D6 MJ, India

In partnership with Reliance Industries Limited, we announced first production from the MJ field in June 2023. This is the third deepwater development brought into production in block KG D6 off the east coast of India. Together, the three fields in KG D6 account for around one third of India's current domestic gas production and meet approximately 15% of the country's gas demand.

Tangguh expansion, Indonesia

Tangguh's Train 3 started up in September 2023. Its production is supporting the growth in supply of LNG, adding around 3.8Mtpa of gross producing capacity to the existing 7.6Mtpa facility, bringing production capacity to around 11.4Mtpa.

Seagull, UK

In November 2023 we announced first production from the Seagull oil and gas field in the UK North Sea in partnership with Neptune Energy and JAPEX. The project is the first subsea tieback to the Eastern Trough Area Project (ETAP) in 20 years.

"bp has been operating in the North Sea for nearly 60 years, delivering a reliable flow of energy, supporting thousands of jobs and a world-class supply chain. We plan to keep doing this by investing in our existing oil and gas infrastructure, like at ETAP."

Doris Reiter
SVP, bp North Sea

Seagull facility in the UK North Sea

Cherry Point refinery, Washington, US

Transforming our refineries

In refining, we expect to drive greater competitiveness and value through our digitization and business improvement plans, including maintaining Solomon first quartile net cash margin.

At our Cherry Point refinery in Washington, we brought online a new vacuum tower and cooling water tower. These upgrades are designed to reduce the refinery's emissions, as well as helping to improve refinery availability and save maintenance costs.

In addition, we plan to invest in our refineries and to target more than double our biofuels co-processing volumes to around 20,000 barrels per day in 2025.

Futureproofing Trinidad

In Trinidad, we restructured the ownership and commercial framework of the Atlantic LNG joint venture★ with its partners Shell and the National Gas Company of Trinidad and Tobago. The restructuring helps provide the certainty required for sanctioning the next wave of upstream★ gas projects and secures the long term LNG equity offtake for shareholders including bp.

★ See glossary on **page 373**

Progress against our strategy continued

Convenience and mobility

By bringing our capabilities and reach in convenience together with EV charging, we aim to provide customer-focused, lower carbon transport solutions over time. We are also focused on growth in our differentiated fuels, *Castrol*, aviation, B2B and midstream including biofuels businesses.

Transition growth★ engines

Convenience: In this growing sector, our scale, premium locations, leading brands and strategic partnerships enable us to deliver differentiated offers for our customers. We have a proven track record of resilient gross margin growth against a challenging backdrop, which underpins confidence in delivery of our strategy. We will continue to expand our footprint, which the *TravelCenters of America* acquisition has accelerated.

EV charging: This sector is moving at pace, and we see significant value through our focus on fast★ charging to on-the-go customers. We are focused on the largest EV car parcs across the US, UK, China and Germany, and our joint venture★ partnerships in India and Iberia.

US retail *boost*

We completed the purchase of *TravelCenters of America* in May 2023.

The deal adds a network of around 290 retail sites★ on major highways across the US. It is expected to almost double[a] our global convenience gross margin★, supporting the growth of our convenience and mobility business.

a On an annualized basis when compared with 2022.

"By integrating *bp pulse*, our fast-growing EV charging business, along with biofuels and renewable natural gas businesses – and in time, hydrogen – we aim to respond to our customers' changing mobility needs."

Emma Delaney
EVP customers & products

TravelCenters of America retail site in Ohio, US

Growing convenience

We strengthened our strategic convenience partnerships and customer offers in 2023.

***REWE To Go*:** bp and Lekkerland extended their successful partnership to continue to deliver *REWE To Go* stores at *Aral* retail sites until 2028.

This is bp's largest European convenience supply agreement and brings together Germany's largest forecourt brand with one of the country's leading convenience specialists in support of bp's convenience transition growth engine delivery.

Auchan, Poland: We signed an agreement with leading convenience retailer, Auchan, with plans to add more than 100 stores to our retail network. The partnership supports our aim to grow our strategic convenience sites★ and convenience gross margin globally.

BPme: We strengthened our BPme Rewards loyalty scheme with the launch of loyalty pricing, giving customers exclusive discounts on retail store products at around 300 bp-owned retail sites across the UK.

bp retail site in West Sussex, UK

Accelerating EV

We expanded our EV charging network in 2023, and demonstrated profitability in our on-the-go business in Germany and our joint venture, bp Xiajou in China.

In the US: We announced a $500 million investment in the US over the next two to three years. As part of this, *bp pulse* entered into an agreement with Tesla for the future purchase of $100 million of ultra-fast★ chargers that will be installed across our *bp pulse* network in the US. The first time Tesla's ultra-fast chargers will be deployed on an independent EV charging network.

In the UK: We opened the UK's largest public EV charging hub in partnership with The EV Network and NEC Group in September. The *Gigahub* is located at the heart of the UK motorway network at the NEC campus in the West Midlands, with capacity to charge up to 180 EVs simultaneously.

In Iberia: In December 2023 we formed a joint venture with Iberdrola to accelerate EV charging infrastructure roll-out in Spain and Portugal. The joint venture plans to invest up to €1 billion and install 5,000 fast EV charge points★ by 2025 and around 11,700 by 2030.

~150%

GWh increase in energy sales volume since 2022

bp pulse EV charging at the *Gigahub* in Birmingham, UK

Leading in EV-fluids

In *Castrol*, our leading position in advanced EV-fluids was further strengthened in 2023. Three out of four of the world's major vehicle manufacturers use *Castrol ON* products as part of their factory fill[b].

And we are investing in our technology centres including a new EV laboratory in Shanghai, China and a new laboratory in New Jersey, US.

b Based on GlobalData report for 2023 for top 20 selling global OEMs (total new vehicles sales).

SAF in action

We are aiming to be a leading supplier of sustainable aviation fuel (SAF), as we look to help decarbonize the aviation sector.

Air bp made its first SAF sale in March 2023. The International Sustainability and Carbon Certification (ISCC) EU SAF was produced through co-processing at our Castellón refinery in Spain. It was first used on a flight from Zaragoza, Spain to North America with LATAM Cargo Chile. This is a milestone in the development of using existing refineries to meet SAF demand produced from sustainable feedstocks.

Supplied by bp and Virent, the first 100% SAF-fuelled commercial transatlantic flight flew from London Heathrow to JFK airport in New York in November 2023.

Virgin Atlantic flight before take-off at London Heathrow airport, UK

★ See glossary on **page 373**

Progress against our strategy continued

Low carbon energy

We plan to create integrated regional hubs, enabled by two of our transition growth engines in the hydrogen and renewables & power sectors.

Transition growth★ engines

Hydrogen: Initially we plan to supply our own refineries – decarbonizing our own operations – as well as sell to local third parties, before increasing production to turn these into regional hubs. As markets evolve, we plan to invest in building global export hubs for hydrogen and hydrogen derivatives such as ammonia. Here, our experience of moving gas through pipelines, integrating renewables into our portfolio and transporting LNG on water will accelerate our route to market for hydrogen and ammonia.

Renewables & power: We are focusing our investment in renewables on opportunities where we can create integration value and enhance returns. We are evaluating options to build a renewables portfolio in green hydrogen★, e-fuels, EV charging and power trading. This includes building a global platform in offshore wind, enabled by our capabilities in large-scale, complex offshore projects, as well as our planned acquisition of Lightsource bp. By combining our power trading and marketing activities into this growth engine, we can integrate through the value chain from generation to customer, enhancing returns, building market position and supporting the decarbonization of electricity.

Transforming Teesside

In 2023 two bp-led lower carbon projects, Net Zero Teesside Power and H2Teesside, part of the East Coast Cluster, were chosen to proceed to negotiations for government support.

bp and Equinor were awarded a carbon storage licence by the North Sea Transition Authority, which will enable the development of further CO_2 storage sites. Together with Equinor we now hold four storage licences on behalf of the Northern Endurance Partnership. There is potential to store up to 23 million tonnes of CO_2 a year in the southern North Sea by 2035.

"This is a huge step forward for these transformative projects, which will help drive the region's low carbon revolution and deliver the UK's net zero targets."

Louise Kingham
UK head of country and SVP Europe

Teesside brownfield site, covering 4,500 acres on the banks of the River Tees, UK

Peacock Solar construction *starts*

We started construction of our 187MW solar project in Texas, US, in mid-2023. The project is planned to come online in the second half of 2024. At full capacity, the installation is expected to generate enough electricity annually to power the equivalent of 34,000 homes.

Peacock will sell all of the electricity it generates under a long-term power purchase agreement, and will also be home to a range of agricultural and biodiversity activities.

This supports our aim to develop 50GW of renewable energy capacity to FID★ by 2030.

Peacock Solar in Texas, US

Lightsource bp acquisition

In November 2023 we agreed to acquire the remaining 50.03% interest in Lightsource bp which we did not already own.

Subject to regulatory approvals, the deal is expected to close in the second half of 2024.

The acquisition aims to scale up Lightsource bp and create additional value by applying complementary capabilities and strengths to help meet the growing demand for low carbon power from our transition growth engines.

"We will continue to scale this successful business, and also apply its capabilities and expertise to help meet the growing demand for low carbon power from our transition growth engines."

Anja Dotzenrath
EVP gas & low carbon energy

Solar farm in Norfolk, UK

Helping Japan *decarbonize*

We signed a memorandum of understanding (MOU) with Japan's second-largest power company, Chubu Electric, to explore opportunities for decarbonization in the country and wider Asia region.

The MOU includes exploring the feasibility of collecting, aggregating, using and transporting CO_2 from major emitters in Japan's Nagoya port to storage sites through a carbon capture and storage hub.

This could help decarbonize a range of the port's carbon-intensive industrial businesses, which account for 3% of Japan's total emissions, supporting its ambition to cut emissions by 35% by 2030.

Hydrogen in Spain

In 2023 we launched plans for a green hydrogen★ cluster called HyVal, at our Castellón refinery in the Valencia region of Spain.

Wind bid *Wins*

We have been successful in two offshore wind bids in Germany – our first in continental Europe.

We will lead the development, construction and operation of these projects, and expect to connect them to the grid by the end of 2030.

Integration opportunity: We expect the renewable power from these projects will support our green hydrogen and biofuels production★, electric mobility growth and refinery decarbonization, as well as wider industry decarbonization in Germany.

4GW

total potential generating capacity from the two sites

"This project is a substantial upgrade for the wind farm and another investment in bp's low carbon energy future."

Orlando Alvarez
Chair and president, bp America

Upgrading Fowler Ridge

We completed a major technology upgrade at our Fowler Ridge 1 wind farm in Indiana, US. The upgrade will help the site produce more power, more efficiently and with greater reliability. The new Vestas turbines are expected to produce up to 40% more energy.

The decommissioned blades will be recycled, avoiding up to 1,500 tonnes of metal going to landfill.

Fowler Ridge wind farm in Indiana, US

★ See glossary on **page 373**

Key performance indicators

We assess the performance of the group across a wide range of measures and indicators that are consistent with our strategy.

Our key performance indicators (KPIs) provide a balanced set of metrics that give emphasis to both financial and non-financial measures. These help the board and leadership team assess bp's performance. Our leadership team uses these measures to evaluate operating performance and inform its financial, strategic and operating decisions.

Safety

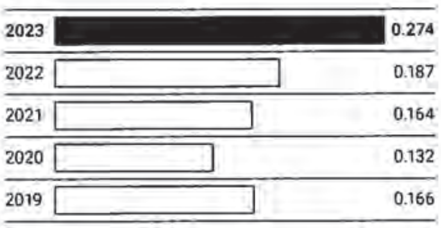
Tier 1 and 2 process safety events★[ab] ●

We track tier 1 and tier 2 events and report the aggregated outcome. Tier 1 events are losses of primary containment from a process of greatest consequence – causing harm to a member of the workforce, damage to equipment from a fire or explosion, a community impact or exceeding defined quantities (per API RP 754 tier 1 definitions). Tier 2 events are those of lesser consequence (per API RP 754 tier 2 definitions).

2023 performance

Our combined process safety events have generally decreased over the last 11 years, apart from in 2019. This downward trend continued in 2023, with 11 fewer (22%) reported than in 2022.

Reported recordable injury frequency[ab]



Reported recordable injury frequency (RIF) measures the number of reported work-related employee and contractor incidents that result in a fatality or injury per 200,000 hours worked.

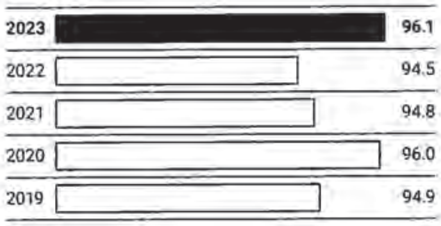
2023 performance

Our recordable injury frequency (RIF) increased by 47%. A rise in the number of injuries in North America (which we attribute in part to the onboarding of retail operations we acquired including *Thorntons*) contributed to this increase.

Safety, **page 69**

Sustainable operations

Refining availability (%) ○



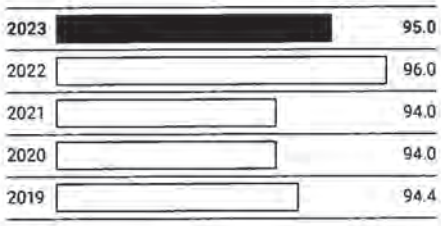
bp-operated refining availability★ represents Solomon Associates' operational availability for bp-operated refineries. The measure shows the percentage of the year that a unit is available for processing after subtracting the annualized time lost due to turnaround activity and all planned mechanical, process and regulatory downtime.

Refining availability is an important indicator of the operational performance of our downstream businesses.

2023 performance

bp-operated refining availability increased to 96.1% in 2023, due to a lower level of unplanned maintenance activity.

Upstream★ plant reliability (%) ○



bp-operated upstream plant reliability is calculated taking 100% less the ratio of total unplanned plant deferrals divided by installed production capacity, excluding non-operated assets and bpx energy. Unplanned plant deferrals are associated with the topside plant and, where applicable, the subsea equipment (excluding wells and reservoirs). Unplanned plant deferrals include breakdowns, which does not include Gulf of Mexico weather-related downtime.

2023 performance

Upstream plant reliability in 2023 was slightly lower than in 2022, mainly due to equipment failures associated with major project ramp-ups.

Remuneration ●

To help align the focus of our executive management and executive directors with the interests of our shareholders, certain measures are used for executive remuneration.

Directors' remuneration report, **page 105**

Key

● Used for remuneration policy

○ Performance against strategy, **page 13**

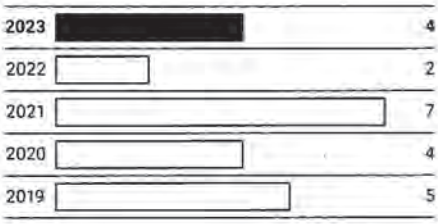
T TCFD Recommendations and Recommended Disclosures

a At the time of publication, the recently acquired US-based Archaea Energy and TravelCenters of America safety reporting processes were still being integrated into bp's safety reporting processes and as such, Archaea Energy and TravelCenters of America safety performance data is not included in reported data for 2023.

b Includes incidents occurring within bp's operational HSSE reporting boundary. That boundary includes bp's own operated facilities and joint ventures where bp is the operator. In some cases, we may also provide information about some of our joint venture activities where we are not the operator.

Financial

Major project delivery



We monitor the progress of our major projects★ to gauge whether we are delivering our core pipeline of projects under construction on time.

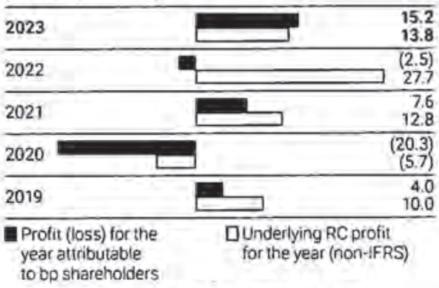
Projects take many years to complete, requiring differing amounts of resource, so a smooth or increasing trend should not be anticipated.

Major projects are defined as those with a bp net investment of at least $250 million, or considered to be of strategic importance to bp, or of a high degree of complexity.

2023 performance

We started up four major oil and gas projects in 2023 – Mad Dog Phase 2 in the US Gulf of Mexico; KG D6 MJ off the east coast of India; the Tangguh expansion in Indonesia; and Seagull in the UK North Sea.

Underlying replacement cost (RC) profit ($ billion)

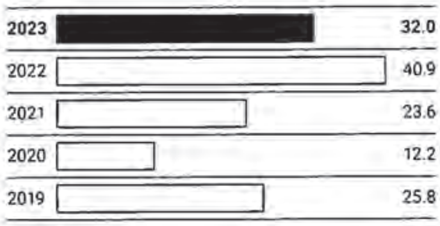


Underlying RC profit★ (non-IFRS) is a useful measure for investors because it is one of the profitability measures bp management uses to assess performance. It assists management in understanding the underlying trends in operational performance on a comparable year-on-year basis. It reflects the replacement cost of inventories sold in the period and is arrived at by adjusting for inventory holding gains and losses★, net impact of adjusting items★ and related taxation from profit or loss attributable to bp shareholders.

2023 performance

Profit for 2023 attributable to bp shareholders includes pre-tax net impairment charges of $5.7 billion. Reduction in the underlying RC profit reflects lower realizations★, the impact of portfolio changes, the impact of lower refining margins and a lower oil trading performance.

Operating cash flow ($ billion)

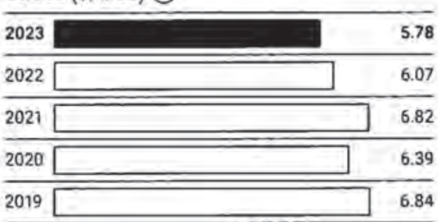


Operating cash flow★ is net cash flow provided by operating activities, as reported in the group cash flow statement.

2023 performance

2023 primarily reflects lower realizations, refining margins and oil trading performance and the impact of portfolio changes.

Upstream unit production costs ($/boe) ○

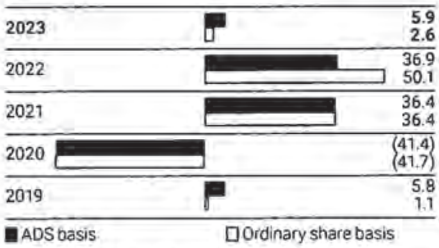


The upstream unit production cost is calculated as production cost divided by units of production. Production cost does not include ad valorem and severance taxes. Units of production are barrels for liquids★ and thousands of cubic feet for gas. Amounts disclosed are for bp subsidiaries only and do not include bp's share of equity-accounted entities.

2023 performance

Unit production costs decreased, in line with our 2025 target, mainly reflecting the impact of portfolio changes.

Total shareholder return (%) ●

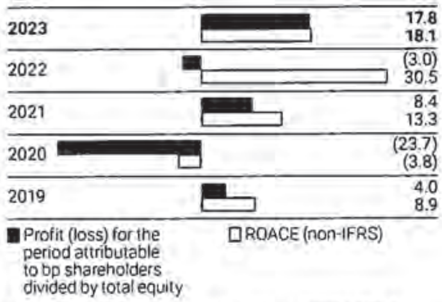


Total shareholder return (TSR) represents the change in value of a bp shareholding over a calendar year (American Deposit Share (ADS) in USD, ordinary share in GBP). It assumes that dividends are reinvested to purchase additional shares at the closing price on the ex-dividend date.

2023 performance

TSR performance reflects increased dividends in 2023.

Return on average capital employed (%) ●



Return on average capital employed (ROACE)★ (non-IFRS) gives an indication of a company's capital efficiency, dividing the underlying RC profit (loss) after adding back non-controlling interest and interest expense net of tax by the average of the beginning and ending balances of total equity plus finance debt, excluding cash and cash equivalents and goodwill as presented on the group balance sheet over the periods presented.

2023 performance

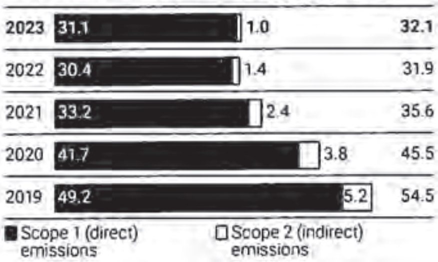
Profit for 2023 attributable to bp shareholders was $15.2 billion and total equity at 31 December 2023 was $85.5 billion. ROACE for 2023 reflected lower realizations, the impact of portfolio changes, the impact of lower refining margins and a lower oil trading performance.

★ See glossary on **page 373**

Key performance indicators
continued

Non-financial

Greenhouse gas emissions[abcde] – operational control ($MtCO_2e$)



We report Scope 1 and Scope 2 greenhouse gas (GHG) emissions material to our business on a carbon dioxide-equivalent basis. This KPI comprises Scope 1 (from running the assets within our operational control boundary) and Scope 2 (associated with importing electricity, heating and cooling that is bought in to run those operations) data covered by aim 1 (to be net zero across our operations by 2050 or sooner). It comprises 100% of Scope 1 and 2 emissions or activities within bp's operational control boundary.

2023 performance

Scope 1 (direct) emissions, covered by aim 1, were 31.1$MtCO_2e$ – an overall increase from 30.4$MtCO_2e$ in 2022. Of these Scope 1 emissions, 30.2$MtCO_2e$ were CO_2 and 1.0$MtCO_2e$ methane[c]. Overall emissions increased due to temporary operational changes, project start-ups and growth, which was partially offset by delivery of SERs and divestments.

In 2023 our Scope 2 (indirect) emissions, covered by aim 1, decreased by 0.4$MtCO_2e$, to 1.0$MtCO_2e$, compared with 2022[d]. Lower carbon power agreements, including those at our Cherry Point and Whiting refineries, contributed to this decrease.

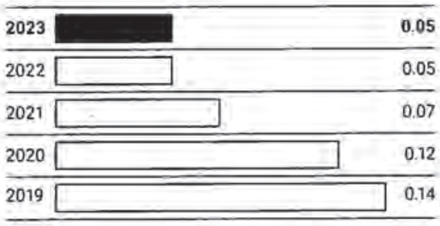
Basis of calculation[f]

bp's reported GHG emissions include methane (CH_4) and carbon dioxide (CO_2). Other GHGs are not included as they are not material to our operations. CH_4 emissions are converted to CO_2 equivalent using the 100-year global warming potential (GWP) recommended by the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC).

Data is required to be submitted into the bp group reporting tool, OneCSR, in accordance with bp's Operating Management System (OMS) requirements, broadly based on the GHG Protocol Corporate Standard and the Ipieca Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions 2nd Edition, May 2011. The responsibility for quantifying and submitting GHG emissions for reporting is assigned to individual bp facilities and business departments, which are termed reporting units (RUs).

Aim 1, **page 48**

Methane intensity[bg] (%)



We define methane intensity★ as the amount of methane emissions from our upstream oil and gas operations as a percentage of the gas that goes to market from those operations. This applies to methane emissions within our operational control boundary, where we have the highest degree of control. Methane emissions from non-producing activities, such as exploration drilling, are excluded. The 2023 methane intensity is calculated based on the currently used methodology and, while it reflects progress in reducing methane emissions, it will not directly correlate with progress towards delivering the 2025 target under aim 4.

2023 performance

We maintained our methane intensity at 0.05% in 2023[g]. Methane emissions from upstream operations used to calculate our intensity, increased by around 10% from 28kt in 2022 to 31kt in 2023.

Basis of calculation[f]

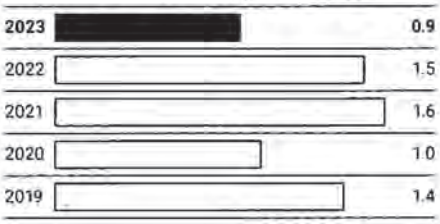
All operated upstream assets report methane (CH_4) emissions on a 100% basis, including emissions from operated upstream oil and gas terminals and LNG facilities. Marketed gas production: all upstream gas reaching a market from bp-operated, upstream assets, whether or not this is bp-owned product, and includes gas production from natural gas wells and associated gas from oil production wells. Throughput from bp-operated oil and gas terminals is excluded to avoid double counting despite their associated CH_4 emissions being included in the metric. CH_4 data is required to be submitted into the bp group reporting tool, OneCSR, in accordance with OMS requirements, broadly based on the GHG Protocol Corporate Standard and the Ipieca Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions 2nd Edition, May 2011. The responsibility for quantifying and submitting CH_4 emissions for reporting is assigned to individual bp facilities and business departments, which are termed RUs.

Aim 4, **page 49**

Key

- Used for remuneration policy
- Performance against strategy, **page 13**
- TCFD Recommendations and Recommended Disclosures

Sustainable GHG emissions reductions★[bh] (SERs) ($MtCO_2e$)



This measure includes actions taken by our businesses to improve energy efficiency and reduce methane emissions and flaring – all leading to ongoing, quantifiable GHG reductions. These refer to the GHG emissions on an operational control basis, which comprise 100% of emissions from activities that are operated by bp and would have occurred had we not made the change – they are absolute in nature. From 2019-23 progress against this target was used as a factor in determining bonuses for eligible employees[i], including executives.

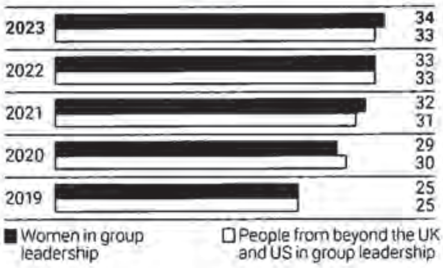
2023 performance

We delivered 0.9$MtCO_2e$ of SERs from our businesses and activities including reducing Scope 2 emissions by 255ktCO_2e at our Cherry Point and Whiting refineries through lower carbon power agreements[d]. We also reduced operational emissions by 149ktCO_2e at bpx energy through ongoing reductions linked to the expansion of bpx energy's network of centralization facilities.

Basis of calculation[f]

See glossary on **page 373** for a description. SERs reported are from reductions that meet three criteria described in the reporting period. SERs reported include Scope 1 (direct) CO_2 emission reductions, direct CH_4 emission reductions and Scope 2 (indirect) GHG emissions reductions. The responsibility for calculating and submitting SERs lies with individual bp facilities and business departments, which are termed reporting units (RUs). RUs submit a quarterly breakdown of SERs directly into the bp group reporting tool, OneCSR. The RUs follow a formal GHG data submission sign-off process in OneCSR confirming SERs have been reported in accordance with OMS requirements.

Diversity and inclusion[j] (%)



Our people are crucial to delivering our purpose and strategy. We aim to recruit talented people from diverse backgrounds, invest in their development and promote an inclusive culture.

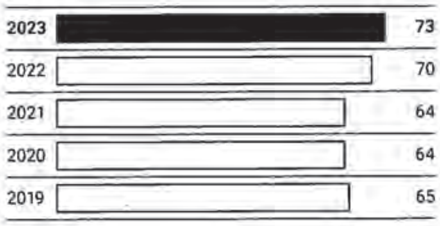
Each year we report the percentage of women and individuals from countries other than the UK and the US among bp's group leaders.

2023 performance

The percentage of women in group leadership increased in 2023, continuing an upward trend over the previous five years. The percentage of people from beyond the UK and US in group leadership remained at 33%.

Diversity, equity and inclusion, **page 71**

Employee engagement (%)



We conduct a 'Pulse annual' employee survey to understand and monitor levels of employee engagement and identify areas for improvement.

2023 performance

Our 2023 survey took place in August. Employee engagement increased to 73% (2022 70%). Pride in working for bp also increased from 78%, reported in 2022, to a record 80%. Both numbers are notable given that participation was the highest since the survey began, with an 85% response rate. We continue to build engagement plans based on survey feedback and on real-time updates from our monthly snapshot, 'Pulse live'.

Employee engagement, **page 71**

a Total (100%) Scope 1 (direct) GHG emissions from source activities operated by bp or otherwise within bp's operational control boundary. bp's reported GHG emissions include CH_4 and CO_2. Other GHGs are not included as they are not material to our operations.
b These are our KPIs for the purposes of our disclosures pursuant to the UK CFD Regulations and Section 414CB (2A) (h) of the Companies Act 2006.
c Due to rounding some totals may not equal the sum of their component parts. This does not affect the underlying values.
d Scope 2 emissions on a market basis.
e Scope 2 GHG emissions figure for 2022 updated to reflect use of renewable energy in UK and offshore in 2022.
f Included as part of reporting under the Companies (Strategic Report) Climate-related Financial Disclosure Regulations 2022 (The UK CFD Regulations).
g Methane intensity is currently calculated using our existing methodology and, while it reflects progress in reducing methane emissions, will not directly correlate with progress towards delivering the 2025 target under aim 4.
h For 2024 our sustainability measure is now linked to our operated carbon emissions, which will cover all increases and decreases in those emissions over the year.
i 36,400 employees were eligible for a cash bonus in 2023 (2022 32,000).
j Relates to bp employees.

★ See glossary on **page 373**

Operating within a resilient and disciplined financial frame

Our financial frame comprises five clear priorities governing how we intend to allocate cash flow that we generate to grow distributions to shareholders, strengthen our balance sheet, and invest with discipline to grow the value of bp.

Our disciplined financial frame to 2025

Resilient dividend	Strong investment grade credit rating	Disciplined investment allocation	Share buybacks
7.270¢ **per ordinary share for 4Q23** **Resilient $40/bbl cash balance point[a]★**	'A' range **credit metrics through cycle**	~$16bn **2024-25 p.a. capital expenditure★**	$3.5bn **1H24[b]** At least $14bn **through 2025[c]**
#1 Capacity for annual increase of the dividend per ordinary share of ~4% at ~$60/bbl	**#2** Target further progress on credit metrics within the 'A' range through cycle	**#3** Transition growth★ engines **#4** Oil, gas, refining and other businesses	**#5** Committed to returning at least 80% surplus cash flow[c]★ on a point forward basis

a Cash balance point $40/bbl Brent, $11/bbl RMM, $3/mmBtu Henry Hub, all 2021 real.
b First half 2024 buybacks will be announced at the first and second quarter results, subject to board approval.
c At current market conditions and subject to maintaining a strong investment grade credit rating.

Our five priorities remain unchanged

#1 Resilient dividend

A resilient dividend remains our first priority within our disciplined financial frame. It is underpinned by a cash balance point of around $40 per barrel Brent, $11 per barrel RMM and $3 per mmBtu Henry Hub (all 2021 $ real).

Since the fourth quarter of 2022 our dividend per ordinary share has grown by 10% to 7.270 cents.

Based on our current forecasts, at around $60 per barrel Brent and subject to the board's discretion each quarter, we expect to have capacity for an annual increase in the dividend per ordinary share of around 4% per annum.

#2 Strong investment grade credit rating

Our second priority is a strong investment grade credit rating. Through the cycle, we are targeting to further improve our credit metrics within an 'A' grade credit range.

For the full year 2023, finance debt increased from $46.9 billion at the end of 2022 to $52.0 billion, primarily reflecting net long-term debt issuances. But we reduced net debt★ from $21.4 billion to $20.9 billion, the lowest in a decade.

#3 & #4 Disciplined investment allocation

We plan to invest with discipline, driven by value, and focused on delivering returns consistent with our hurdle rates across both our transition growth engines (#3) and our oil, gas and refining businesses (#4). Investment is allocated across our businesses based on a set of criteria that balances strategic alignment, hurdle rates, volatility, integration value, sustainability and risk (see **page 30** for more information).

In 2023 capital expenditure was $16.3 billion. We expect capital expenditure to remain around $16 billion per annum between 2024-25. Our capex frame between 2026 and 2030 remains £14-18 billion per annum. This includes expenditure on inorganic opportunities.

#5 Share buybacks

We have simplified and enhanced our share buyback guidance. We are committed to announcing $3.5 billion of share buybacks for the first half of 2024. We plan share buybacks of at least $14 billion through 2025, at current market conditions and subject to maintaining a strong investment grade credit rating. This is part of our commitment, on a point forward basis, to returning at least 80% of surplus cash flow to shareholders.

We announced share buybacks of $6.5 billion from 2023 surplus cash flow. Between the end of the first quarter 2021 and 31 December 2023, we have reduced our issued share capital by 17%.

In setting the dividend per ordinary share and buyback each quarter, the board will continue to take into account factors including the cumulative level of and outlook for surplus cash flow, the cash balance point and maintaining a strong investment grade credit rating.

Six near-term priorities

We are focused on growing the value of bp, underpinned by six near-term priorities.

1 Improve safety and reduce emissions
Safety is our number one priority. And we are working towards our aim for net zero operations

2 Drive focus into the business
Actively manage our portfolio, continued high-grading

3 Deliver next wave of efficiency
Using technology and global capability hubs to increase margin while decreasing spend

4 Deliver growth projects
Progressing next set of projects to provide growth through to the end of this decade and into the next

5 Optimize returns
Targeting >18% return on average capital employed★ in 2025[a]

6 Grow shareholder returns
Committed to returning at least 80% of surplus cash flow[b] through share buybacks

Measured by

continued improvement in safety metrics

20%
reduction in operating emissions[c], 0.20% methane intensity★ target based on measurement approach[c]

96%
upstream★ plant reliability★[d]

~96%
refining availability★[d]

~$16bn
capital expenditure★ for 2024-25 p.a.

2024 guidance

	2023 actual	2024 guidance
Upstream reported production (guidance is both reported and underlying production★)	**2.3mmboe/d**	Slightly higher than 2023
Total capital expenditure★	**$16.3bn**	Around $16bn, weighted to the first half
Depreciation, depletion and amortization	**$15.9bn**	Slightly higher than 2023
Divestments and other proceeds[e]	**$1.8bn**	$2-3bn, weighted towards the second half
Gulf of Mexico oil spill payments[f] (pre-tax)	**$1.3bn**	~$1.2bn including $1.1bn pre-tax to be paid during the second quarter
Other businesses & corporate underlying annual charge	**$0.9bn**	Around $1.0bn
Underlying effective tax rate★	**39%[g]**	Around 40%[h]

a By 2025. $70/bbl (2021 real), at bp planning assumptions.
b At current market conditions and subject to maintaining a strong investment grade credit rating.
c By 2025 and versus 2019.
d By 2025.
e Divestment proceeds★ are disposal proceeds as per the group cash flow statement. See **page 37** for more information on divestment and other proceeds.
f See Financial statements – Note 22 for more information on payables related to the Gulf of Mexico oil spill.
g **Nearest equivalent GAAP IFRS measure:** effective tax rate 33%.
h Underlying effective tax rate★ is sensitive to the impact that volatility in the current price environment may have on the geographical mix of the group's profits and losses.

★ See glossary on **page 373**

Our investment process

How we use price assumptions

Our price assumptions are used for our investment appraisal processes. They are also used to inform decisions about internal planning and the value-in-use impairment testing of assets for financial reporting.

The role of price assumptions

As part of our regular strategy review, we consider our portfolio and capital requirements to deliver the strategy. This work (and, where applicable, our decisions on individual investments) is informed by our view of the price environment and considers the balanced investment criteria discussed below.

Our price assumptions continue to reflect a range of possibilities, including that the transition to a lower carbon economy and energy system could accelerate. Our investment appraisal assumptions, which take a long-term perspective, focus on the fundamental trends affecting the energy sector and our businesses.

Throughout 2023 we held our key investment appraisal price assumptions constant at the levels set out in the *bp Annual Report and Form 20-F 2022*. For relevant investment cases assessed in 2024, we have applied and plan to apply the prices shown in the key investment appraisal assumptions table (right) for our central price case. Brent oil and Henry Hub gas assumptions average around $64/bbl and $4.0/mmBtu respectively (2022 $ real) from 2024 to 2050. We consider these prices to be broadly consistent with a range of transition paths compatible with meeting the Paris goals, but they do not correspond to any specific Paris-consistent scenario. We also consider a range of other price assumptions for our investment appraisal, including product- and market-specific prices relevant to individual investment cases.

We continue to apply carbon prices rising to $100/tCO_2e$ in 2030 and $250/tCO_2e$ by 2050 (2021 $ real) in certain cases (see box on the right). In 2022 $ real terms, this corresponds to $108/tCO_2e$ by 2030 and $270/tCO_2e$ by 2050.

Key

T Information that supports TCFD Recommendations and Recommended Disclosures in relation to Metrics and Targets

Impairment testing

Our best estimate of future prices for use in value-in-use impairment testing continues to be based on our investment appraisal price assumptions, with quarterly review of near-term prices to confirm that the assumptions appropriately reflect any changes to expectations due to short-term market trends.

Impairment price assumptions were held constant in 2023 at the levels disclosed in the *bp Annual Report and Form 20-F 2022* until the fourth quarter, when the updated investment appraisal price assumptions shown below were used for value-in-use impairment testing.

Key investment appraisal assumptions[a] T
2022 $ real

	2025	2030	2040	2050
Brent oil ($/bbl)	70	70	63	50
Henry Hub gas ($/mmBtu)	4.0	4.0	4.0	4.0
Refining marker margin[b]★ ($/bbl)	14	14	11	8.5

In addition to the prices shown we also test whether investments meet our return expectations (see **page 32**) using a $60/bbl Brent oil price series.

Carbon price (US$/tCO$_2$e) T
2022 $ real

	2025	2030	2040	2050
Carbon	54	108	216	270

a The values in the table represent the central case.
b The disclosed RMM assumption in the table excludes carbon pricing impacts and assumes a normalized cost of renewable identification numbers (RINs).

For investment appraisal, potential future operational emissions costs that may be borne by bp as a result of an investment are included as bp costs, as described in the box below (generally without assuming incremental revenue associated with those emissions), in order to incentivize engineering solutions that reduce operational carbon emissions on projects. For the treatment of emission cost assumptions in value-in-use impairment testing, see Financial statements – Note 1.

Investment process price assumptions

All investments are evaluated against relevant price assumptions for oil, natural gas, refining margins or other commodities across a range of alternative price or margin series (typically a central, upper and lower series). In addition, all investment cases with anticipated annual operational GHG emissions (Scope 1 and 2) above 20,000 tonnes of CO_2 equivalent (bp net basis) must estimate those anticipated GHG emissions and include an associated carbon cost in the investment economics, using the carbon prices above.

Our investment price assumptions place some weight on scenarios in which the transition to a low carbon energy system is sufficiently rapid to meet the goals of the Paris Agreement, as well as scenarios in which the transition may not be sufficiently rapid. They also place some weight on a range of other factors that can drive prices, and which are not directly related to the Paris goals.

These price assumptions do not link to specific scenarios or outcomes, but instead try to capture the range of different possibilities surrounding the future path of the global energy system. The nature of the uncertainty means that the price ranges inevitably reflect considerable judgement. The ranges are reviewed and updated as necessary, as our understanding of and judgements about the energy transition evolve.

In addition to consideration of a range of price assumptions, investment cases also assess the impact of alternative assumptions covering other selected variables relevant to the economics of the investment. These variables may include cost, resource, policy changes and schedule, or other areas of uncertainty, to assess the robustness of investment cases to a range of other factors.

Investment governance and evaluating consistency with the Paris goals

Governance framework

bp's framework for investment governance seeks to ensure that investments align with our strategy, can be accommodated within our prevailing financial frame, and add shareholder value. It enables investments to be assessed in a consistent way against a range of criteria relevant to our strategy, including environmental and other sustainability criteria.

Investments follow an integrated stage-gate process designed to enable our businesses to choose and develop the most attractive investment cases. A balanced set of investment criteria is used (see **page 32**). This allows for the comparison and prioritization of investments across an increasingly diverse range of business models.

The governance framework specifies that proposed investments are evaluated using relevant assumptions, including carbon prices for projected operational emissions where applicable. It also sets out requirements for assurance by functions independent of the business before a final investment decision (FID) is taken.

The role of the board

The board assesses capital allocation across the bp portfolio, including the level and mix of capital expenditures and divestments, strategic acquisitions, distribution choices and deleveraging, as well as reviewing certain investment cases for approval.

Resource commitment meeting

For acquisitions and organic capital investments above defined financial thresholds, investment approval is conducted through the executive-level resource commitment meeting (RCM), which is chaired by the chief executive officer. The RCM reviews the merits of each investment case against a balanced set of criteria (see **page 32**) and considers any key issues raised in the assurance process.

The CA100+ resolution★ requires bp to disclose how we evaluate the consistency of new material capex investments★ with (i) the Paris goals and (ii) a range of other outcomes relevant to bp's strategy.

bp's evaluation of the consistency of such investments with the Paris goals was undertaken by the RCM for new material capex investments sanctioned in 2023 (see **page 34**).

bp's evaluation of an investment's consistency with 'a range of other relevant outcomes' is achieved by considering its merits against bp's balanced investment criteria, described on **page 32**.

bp board
Reviews and approves investment cases: of more than $3 billion for resilient hydrocarbons, more than $1 billion for all transition or low carbon investments★ and any significant inorganic acquisition that is exceptional or unique in nature.

Resource commitment meeting
Forum for executive management's approval of investments related to existing and new lines of business above $250 million or $25 million for acquisitions, or which exceed the relevant EVP's financial authority, and any project considered strategically important such as a new market entry.

Investment allocation committees
EVP-level forums to review investment cases within a business group as per individual EVP financial authority (up to $250 million, or typically $25 million for acquisitions).

Business group investment governance meetings
SVP-level forums which review investment cases within a business group, enabler or integrator up to the individual SVP's financial authority.

Cross-group meetings
Forums that facilitate discussions across businesses and functions, to support project development, sensitivity analysis, integration opportunities and risk assessment ahead of investment committee meetings.

Investment in non-oil and gas

Our aim 5 is to increase the proportion of investment we make into our non-oil and gas businesses. Aim 5 aligns with our transition growth investment★. In 2023 transition growth investment was $3.8 billion, compared to $4.9 billion in 2022. The change from 2022 reflects lower inorganic investment in our transition growth engines, outweighing an increase in organic investment into them over the year (see **page 49**).

Bioenergy: Following our 2022 acquisition of Archaea Energy, and continued growth through 2023, Archaea started up its modular design renewable natural gas (RNG) plant in Medora, Indiana in October 2023 (see **page 18**).

EVs: Together with our strategic convenience site networks, our investment in EV charging is helping us to offer low carbon solutions to customers. In 2023 we continued to rapidly build scale in our EV charging network in key markets including China, the UK, Germany and the US (see **page 21**). We also announced a new global mobility agreement with Uber, which will see us work together to help accelerate Uber's commitment to becoming a zero-tailpipe emission mobility platform in the UK, US, Canada and Europe by 2030 and globally by 2040.

Convenience: In 2023 we had 2,850 strategic convenience★ sites, and aim to have around 3,000 by 2025. In May 2023 we acquired TravelCenters of America, a leading travel centre operator in the US, with a network of around 290 sites strategically located on major highways across the country (see **page 20**).

Hydrogen: We aim to build a leading global position in hydrogen – initially by supplying our own refineries and then scaling up to meet growing customer demand. In parallel, as markets evolve, we aim to develop global export hubs for hydrogen and its derivatives. In 2023 we announced a $12.5 million investment in the hydrogen electrolyzer innovator, Advanced Ionics. This investment is expected to help drive Advanced Ionics' growth and facilitate the initial deployment of its Symbion™ water vapour electrolyzer technology for heavy industry. The company's water vapour electrolyzer helps reduce the cost and electricity requirements of green hydrogen★ production. In the Valencia region of Spain, we launched plans for a green hydrogen cluster called HyVal, at our Castellón refinery (see **page 23**).

Renewables & power: In 2023 we were awarded the rights to develop two offshore wind projects in the German tender round. The two North Sea sites have a total potential generating capacity of 4GW (see **page 23**). We also announced our joint venture★ with Deep Wind Offshore to develop opportunities in South Korea, acquiring a 55% stake in the company's early-stage offshore wind portfolio. This includes four projects with a combined potential generating capacity of up to 6GW. In Texas, US, we started construction work on the 187MW Peacock Solar project (see **page 22**). And in November 2023 we agreed to acquire the remaining 50.03% interest in Lightsource bp, which we did not already own (see **page 23**).

Low carbon activity investment

In 2023 low carbon activity investment★, a subset of our total aim 5 transition growth investment, accounted for 67% of our total aim 5 investment (80% in 2022). It decreased from more than $4 billion in 2022 to more than $2.5 billion in 2023, reflecting the impact of large low carbon acquisitions in 2022. Most of this investment was in biogas, offshore wind, EV charging and hydrogen. Our current business plans see low carbon activity★ comprising more than 80% of our aim 5 spend by 2030.

★ See glossary on **page 373**

Our investment process continued

Balanced investment criteria

All investment cases must set out their investment merits and are considered against a set of six balanced investment criteria – although investment decisions may also take other factors into account as appropriate. This standardized approach is intended to create a level playing field for decision making and allows portfolio-wide comparisons of investment cases. The decision to endorse an investment based on the information provided represents our evaluation that it is consistent with what the 2019 CA100+ resolution★ refers to as 'a range of other outcomes relevant to bp's strategy'.

The **six** balanced investment criteria are:

Strategic alignment: For all investment cases, we consider whether the investment supports delivery of our strategy, including our net zero aims. We also assess if the investment case involves distinctive capability that bp has, or intends to develop, and whether it adds to an existing 'scale' business within the portfolio or could help us create one.

Safety and risks: For all investment cases, we provide an assessment of the key risks to the investment that have a significantly higher probability than usual or have a significantly greater impact (relative to the size of the project) were they to occur. Safety risk management at bp is underpinned by our Operating Management System (OMS)★ that is designed to help us sustainably deliver safe, reliable and compliant bp operations.

Sustainability: For all investment cases, we consider how any proposed business opportunity is connected to the energy transition, societal needs and the environment. This approach is underpinned by our purpose and sustainability frame. All RCM cases must consider significant impacts of an investment on key sustainability aims, informed by our sustainability assessment template for investment cases (for our use of carbon prices, see box on **page 30**).

Investment economics: For all investment cases, we consider investment economics against a range of relevant measures. Depending on the nature of the investment case, these may include return expectations (internal rate of return or IRR), net present value, discounted payback, and profitability index, reflecting assumptions about relevant commodity prices, margins and carbon prices (see **page 30**). The forward economics of an investment case are considered against the differentiated IRRs, applicable to that case at the time of the investment decision, depending on the business. We also refer to these expectations as hurdle rates, although as noted, each case is assessed according to its combined merit against our full set of balanced criteria.

1. For our resilient hydrocarbons portfolio, we seek a payback of less than 10 years for upstream oil and refining and 15 years for upstream gas; together with an IRR of 15-20%.
2. For bioenergy, we seek an IRR in excess of 15%.
3. For our convenience and EV charging businesses, we seek portfolio-level returns in excess of 15%.
4. For our hydrogen investments, we expect double-digit (unlevered) IRR.
5. For renewables investments, we seek an unlevered IRR of 6-8%.

For each investment, the relevant return expectations above are assessed using our central price assumptions. For additional capital discipline for investments in oil and gas production, we also compare the central price hurdle above (15-20%) to a case in which the Brent oil price starts at $60/bbl and later declines to the level of our key appraisal assumptions by 2050 (see **page 30**). In addition, for investments in our oil and gas and refined products businesses, as well as any other investments that do not fall within one of the specific businesses set out above, we also compare the IRR in our lower-price case to a cost of capital hurdle rate.

Volatility and rateability: Our investment economics metrics also consider the degree of uncertainty of the cash flows when considering investment cases. For example, some cases have more certainty of future costs and revenue projections. Variation in net present values for the key variables in an investment case are quantified by sensitivity analysis to give a range of potential outcomes against our key investment hurdles.

Optionality and integration: Our assessment considers the degree of optionality offered by a project – the ability to adapt our business to changing circumstances. This could be an option to sell a product with a floor price, or the right to purchase additional equity in a joint venture at specific terms. Other types of options include the right to develop (or not develop) extensions to existing projects, or to change the course of a project's development depending on market circumstances. We likewise seek out integration along value chains across multiple products, services, geographies and customers. For example, our gas production can supply liquefaction plants whose LNG is monetized by our trading business. Likewise, future carbon sequestration projects may allow us to add value to our gas production by converting it to low carbon power.

Paris consistency evaluation process

Our new material capex investments★ are intended to support the delivery of bp's strategy.

For evaluations conducted in 2023, investments in scope for evaluation were defined as:

- **New:** investment in a new project or extension of an existing project/asset or share of an entity that is new to bp or a substantial increase in bp's share.
- **Material:** more than $250 million capex investment.

We evaluated new material capex investment using our central price assumptions (see **page 30**), and, where applicable, using our lower-price case. Where relevant the evaluation also incorporated our carbon price assumptions, applied to the anticipated operational GHG emissions associated with the investment, through to 2050.

Quantitative evaluations

For our investment economics and sustainability investment criteria we considered quantitative guide levels, as set out below, to inform the evaluation of each investment's consistency with the goals of the Paris Agreement. As was the case last year, we have again lowered our operational carbon intensity guide levels in line with our decreasing portfolio average. As our approach matures with experience, we may continue to adjust or supplement our methodology. There may be instances when new material capex investments are evaluated as consistent with the Paris goals despite either the economic or sustainability guide levels not being met. The RCM may also take account, in its Paris consistency evaluation, of the six balanced investment criteria (above) using qualitative assessments.

Investment economics: We calculated economic indicators using our central price, and where applicable, our lower price cases, and applying our carbon price assumptions to relevant operational GHG emissions. (For our key central case oil and natural gas price assumptions, see **page 30**, where we also set out our view on their consistency with achieving the Paris goals). We then compare the economic indicators to the relevant economic guide level (see below), based on the corresponding hurdles presented (**page 32**). We typically target a threshold of >1.0x the relevant IRR guide level, and <1.0x any relevant payback guide level.

Sustainability: Where appropriate, we compared the expected operational carbon intensity★ of the investment relative to that of the portfolio average shown in the *bp Sustainability Report 2022* for the segment or the related business activity (upstream and refining). We normally target a ratio of less than 100%, meaning that the investment is expected to reduce the average operational carbon intensity of the relevant portfolio. The potential impact of new material capex investments on bp's net zero aims is a further consideration.

Evaluation outcome

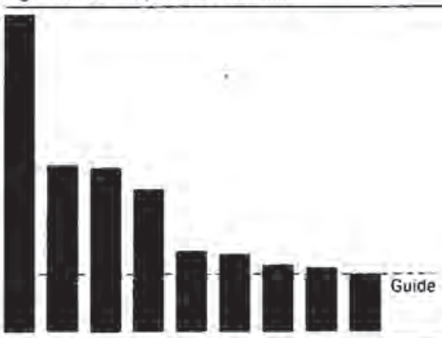
In 2023 there were nine new material capex investments approved. All were evaluated as being consistent with the Paris goals.

Evaluation of investment performance against quantitative guide levels[a]

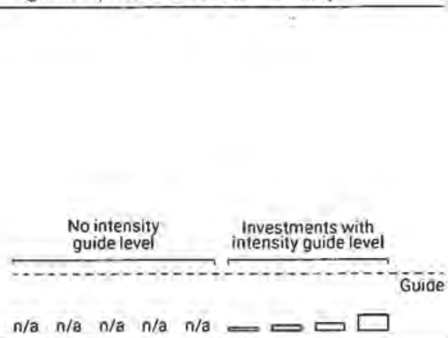
All nine investments met the relevant IRR guide level as shown in the chart.

The four upstream hydrocarbon projects had emissions intensities below the relevant upstream intensity guide level. Five of the investments did not have an applicable carbon intensity guide for the relevant business. These investments are shown as 'n/a' in the operational carbon intensity chart.

Investment economics
Against central price economics



Sustainability[b]
Against operational carbon intensity



a The 2023 investments have been compared to relevant guides (as applicable to the evaluation of each investment) and are presented here in order of the ratio to the relevant central-price case IRR guide level, and separately in order of the ratio to the relevant emissions intensity guide level. As a result, the evaluations against the economic and sustainability benchmarks do not necessarily follow the same order.
b For five of the investments, we do not have an applicable carbon intensity guide level for the relevant business.

★ See glossary on **page 373**

Our investment process continued

Decisions taken in 2023

In 2023 there were nine new material capex investment decisions evaluated for Paris consistency:

Argos Gulf of Mexico

The Argos Southwest Extension project aims to deliver production from a new drill centre in the Mad Dog field, tied back to existing equipment with subsea infrastructure. Argos is our most digitally advanced platform operating in the Gulf of Mexico, and is key to our strategy of building capacity to produce around 400,000boe/d. We expect volumes to average around 350,000boe/d through the second half of the decade.

Oman Block 61

The investment involves the development and construction of a wellsite for a large number of wells and flowlines in Oman. The programme supports delivery of supply commitments and enables optimal depletion of the reservoir.

Murlach Redevelopment

Murlach is a two-well subsea tieback to existing infrastructure in the North Sea. The use of existing infrastructure is expected to help keep down development costs and operational carbon intensity, which is expected to be significantly below bp's average for its upstream operations.

Raven Infills

The Raven Infills Project is a two-well subsea tieback to existing Raven infrastructure in Egypt. The project's expected operational carbon intensity is significantly below bp's average for upstream operations.

TravelCenters of America

bp completed its purchase of TravelCenters of America, one of the biggest networks of highway travel centres in the US, adding a network of around 290 sites, strategically located on major highways across the US. The deal is expected to almost double[a] our global convenience gross margin★ and, over time, brings potential growth opportunities in four of our five transition growth engines.

bp pulse On-The-Go US

bp continued to advance its growth strategy in EV charging, approving a programme of investment of $500 million in EV charging infrastructure in the US, including an agreement with Tesla for the future purchase of $100 million of ultra-fast★ chargers in the US. The investment will facilitate the expansion of the *bp pulse* public network across the US, while also enabling support for EV fleet customers by deploying chargers at their private depots.

Lightsource bp acquisition

Subject to regulatory approval, bp agreed to acquire the remaining 50.03% interest in Lightsource bp, one of the world's leading developers and operators of utility-scale solar and battery storage assets. Lightsource bp operates with a capital-light, 'develop, engineer, construct and farm down' business model, which is designed to create value by selling interests in developed assets to strategic partners. The acquisition is expected to help meet growing demand for low carbon power from our transition growth★ engines.

Offshore German wind auction

bp was awarded the rights to develop two offshore wind projects in the North Sea in Germany, marking our entry into offshore wind in continental Europe. We expect renewable power from these projects to support our green hydrogen and biofuels production★, electric mobility growth and refinery decarbonization, as well as wider industry decarbonization in Germany.

Power and gas supply acquisition

bp has agreed to acquire GETEC ENERGIE GmbH, a leading independent supplier of energy to commercial and industrial (C&I) customers, with operations in Germany, the Netherlands, Austria, Belgium, and Poland. On completion the acquisition will significantly expand our European power and gas C&I supply presence.

a On an annualized basis when compared with 2022.

Group performance

A year of delivery

$15.2bn
profit attributable to bp shareholders
(2022 loss $(2.5)bn)

$13.8bn
underlying replacement cost (RC) profit★
(2022 profit $27.7bn)

$32.0bn
operating cash flow★
(2022 $40.9bn)

> bp delivered strong underlying financial performance in 2023 – we raised the dividend per ordinary share by 10% to 7.270 cents for the second quarter of 2023 and bought back $7.9 billion of shares. We remain focused on strengthening the balance sheet. As we look forward, we are staying disciplined, tightening our capital expenditure frame and simplifying and enhancing our share buyback guidance through 2025.

Kate Thomson
Chief financial officer

Financial and operating performance

	$ million except per share amounts		
	2023	2022	2021
Sales and other operating revenues	**210,130**	241,392	157,739
Profit before interest and tax	**27,348**	18,039	18,082
Finance costs and net finance income/expense relating to pensions and other post-retirement benefits	**(3,599)**	(2,634)	(2,855)
Taxation	**(7,869)**	(16,762)	(6,740)
Profit (loss) for the year	**15,880**	(1,357)	8,487
Non-controlling interest	**(641)**	(1,130)	(922)
Profit (loss) for the year attributable to bp shareholders	**15,239**	(2,487)	7,565
Inventory holding (gains) losses★, before tax	**1,236**	(1,351)	(3,655)
Taxation charge (credit) on inventory holding gains and losses	**(292)**	332	829
Replacement cost (RC) profit (loss)★	**16,183**	(3,506)	4,739
Net (favourable) adverse impact of adjusting items★[a], before tax	**(1,143)**	29,781	8,697
Total taxation charge (credit) on adjusting items	**(1,204)**	1,378	(621)
Underlying RC profit	**13,836**	27,653	12,815
Adjusted EBIDA★	**34,345**	45,695	30,783
Adjusted EBITDA★	**43,710**	60,747	37,315
Dividend paid per ordinary share (cents)	**27.760**	22.932	21.420
Dividend paid per ordinary share (pence)	**22.328**	18.624	15.538
Profit (loss) per ordinary share (cents)	**87.78**	(13.10)	37.57
Profit (loss) per ADS (dollars)	**5.27**	(0.79)	2.25
Underlying RC profit per ordinary share★ (cents)	**79.69**	145.63	63.65
Underlying RC profit per ADS★ (dollars)	**4.78**	8.74	3.82
Adjusting items[a]			
Gains on sale of businesses and fixed assets	**361**	3,866	1,851
Net impairment and losses on sale of businesses and fixed assets	**(5,838)**	(5,920)	1,123
Environmental and other provisions	**(647)**	325	(1,536)
Restructuring, integration and rationalization costs	**37**	34	(249)
Fair value accounting effects (FVAEs)[b]	**9,403**	(3,501)	(8,075)
Rosneft	**–**	(24,033)	(291)
Gulf of Mexico oil spill	**(57)**	(84)	(70)
Other	**(1,711)**	(43)	(668)
Total before interest and taxation	**1,548**	(29,356)	(7,915)
Finance costs	**(405)**	(425)	(782)
	1,143	(29,781)	(8,697)
Adjusting items total taxation	**1,204**	(1,378)	621
	2,347	(31,159)	(8,076)

a See **page 337** for more information.
b See **page 338** for information on the cumulative impact of FVAEs.

Group performance continued

At 31 December 2023 the group's reportable segments are gas & low carbon energy, oil production & operations and customers & products. Each is managed separately, with decisions taken for the segment as a whole, and represent a single operating segment that does not result from aggregating two or more segments. See Financial statements – Note 5 Segmental analysis.

Results

The profit for the year ended 31 December 2023 attributable to bp shareholders was $15.2 billion, compared with a loss of $2.5 billion in 2022. Adjusting for inventory holding losses, RC profit was $16.2 billion, compared with a loss of $3.5 billion in 2022.

After adjusting RC profit for a net impact of items, which bp has classified as adjusting (adjusting items) of $2.3 billion (on a post-tax basis), underlying RC profit for the year ended 31 December 2023 was $13.8 billion. The result reflected lower realizations, the impact of portfolio changes, the impact of lower refining margins and a lower oil trading performance.

For 2022, after adjusting RC profit for a net adverse impact of adjusting items of $31.2 billion (on a post-tax basis), underlying RC profit was $27.7 billion. The result reflected higher gas and liquids realizations and higher refining margins, partially offset by higher tax and the absence of bp's share of earnings from Rosneft.

For a discussion of bp's financial and operating performance for the years ending 31 December 2021 and 31 December 2022, see bp's *Annual Report and Form 20-F 2022*, pages 32-44.

Adjusting items

In 2023 the net favourable pre-tax impact of items, which bp has classified as adjusting (adjusting items) was $1.1 billion including:

- Favourable fair value accounting effects (FVAEs) relative to management's measure of performance of $9.4 billion primarily due to a decline in the forward price of LNG during 2023. Under IFRS, reported earnings include the mark-to-market value of the hedges used to risk-manage LNG contracts, but not of the LNG contracts themselves. The underlying result includes the mark-to-market value of the hedges but also recognizes changes in value of the LNG contracts being risk managed. The impacts of FVAEs relative to management's internal measure of performance are provided on **page 338**.
- Net impairment charges of $5.7 billion largely as a result of changes in the group's price and discount rate assumptions, activity phasing and economic forecasts (in particular related to the Gelsenkirchen refinery).
- In addition, $1.3 billion net impairment charges were reported through equity-accounted earnings (reported within the 'other' category), of which $1.1 billion relates to our US offshore wind projects.

In 2022 the net adverse pre-tax impact of adjusting items was $29.8 billion including:

- A pre-tax charge of $24.0 billion relating to bp's decision to exit its 19.75% shareholding in Rosneft.
- Adverse FVAEs relative to management's measure of performance of $3.5 billion primarily arising from an increase in forward gas prices during the year and the changes in the fair value of derivatives entered into by the group to manage currency exposure and interest rate risks relating to hybrid bonds. Under IFRS, reported earnings include the mark-to-market value of the hedges used to risk-manage LNG contracts, but not of the LNG contracts themselves. The underlying result includes the mark-to-market value of the hedges but also recognizes changes in value of the LNG contracts being risk managed. The impacts of FVAEs relative to management's internal measure of performance are provided on **page 338**.
- Net impairment charges of $4.8 billion principally as a result of expected portfolio changes in our oil production & operations segment, the annual review of price assumptions used for investment appraisal and value-in-use impairment testing and the annual review of discount rates used for impairment tests; partially offset by
- A non-taxable gain of $1.9 billion arising from the contribution of bp's Angolan business to Azule Energy.

See Financial statements – Note 4 for more information on impairments, and **pages 337 and 338** for more information on adjusting items and FVAEs.

Taxation

The charge for corporate income taxes was $7,869 million in 2023 compared with $16,762 million in 2022. The decrease mainly reflects lower taxable profits. The effective tax rate (ETR) on the profit before taxation for the year in 2023 was 33%, compared with 109% in 2022.

The ETR on the profit before taxation for the year in 2023 was impacted by fair value accounting effect gains and other adjusting items. The ETR on the profit before taxation for the year in 2022 was impacted by the pre-tax charges relating to bp's decision to exit its shareholding in Rosneft, and the UK Energy Profits Levy. Excluding inventory holding impacts and adjusting items, the underlying ETR★ in 2023 was 39% compared with 34% in 2022. The underlying ETR in 2023 is higher due to changes in the geographical mix of profits and the increased impact of the UK Energy Profits Levy. The underlying ETR for 2024 is expected to be around 40% but is sensitive to the impact that volatility in the current price environment may have on the geographical mix of the group's profits and losses. Underlying ETR is a non-IFRS measure. A reconciliation to IFRS information is provided on **page 382**.

Outlook for 2024

2024 guidance

- bp expects both reported and underlying upstream production★ to be slightly higher compared with 2023. Within this, bp expects underlying production from oil production & operations to be higher and production from gas & low carbon energy to be lower.
- In its customers business, bp expects continued growth from convenience, including a full-year contribution from TravelCenters of America, a stronger contribution from *Castrol* underpinned by volume growth in focus markets, and continued margin growth from *bp pulse* driven by higher energy sold. In addition, bp expects fuel margins to remain sensitive to the cost of supply.
- In products, bp expects a lower level of industry refining margins, with realized margins impacted by narrower North American heavy crude oil differentials. bp expects refinery turnaround activity to have a similar impact on both throughput and financial performance compared to 2023, with phasing of activity in 2024 heavily weighted towards the second half.
- bp expects the other businesses & corporate underlying annual charge to be around $1.0 billion for 2024. The charge may vary from quarter to quarter.

Cash flow and debt information

	$ million		
	2023	2022	2021
Cash flow			
Operating cash flow★	**32,039**	40,932	23,612
Net cash used in investing activities	**(14,872)**	(13,713)	(5,694)
Net cash provided by (used in) financing activities	**(13,359)**	(28,021)	(18,079)
Cash and cash equivalents at end of year	**33,030**	29,195	30,681
Capital expenditure★[a]	**(16,253)**	(16,330)	(12,848)
Divestment and other proceeds[b]	**1,843**	3,123	7,632
Debt			
Finance debt	**51,954**	46,944	61,176
Net debt★	**20,912**	21,422	30,613
Net debt including leases★	**31,902**	29,990	39,411
Finance debt ratio★ (%)	**37.8%**	36.1%	40.3%
Gearing★ (%)	**19.7%**	20.5%	25.3%
Gearing including leases★ (%)	**27.2%**	26.5%	30.4%

a An analysis of capital expenditure by segment and region is provided on **page 336**.
b Divestment proceeds are disposal proceeds as per the group cash flow statement. See below for more information on divestment and other proceeds.

Operating cash flow

Operating cash flow for the year ended 31 December 2023 was $32.0 billion, $8.9 billion lower than 2022. Compared with 2022, operating cash flows in 2023 primarily reflected lower realizations, refining margins and oil trading performance and the impact of portfolio changes.

Movements in working capital★ adversely impacted cash flow in the year by $3.3 billion, including an adverse impact from the Gulf of Mexico oil spill of $1.2 billion. Other working capital effects were principally a decrease in other current liabilities, partly offset by decreases in inventory and other current assets. bp actively manages its working capital balances to optimize and reduce volatility in cash flow.

Operating cash flow for the year ended 31 December 2022 was $40.9 billion, $17.3 billion higher than 2021. Compared with 2021, operating cash flows in 2022 reflected higher profits from operations partly offset by working capital movements and higher tax payments.

Movements in working capital adversely impacted cash flow in 2022 by $6.3 billion, including an adverse impact from the Gulf of Mexico oil spill of $1.3 billion. Other working capital effects were principally an increase in other current assets and inventory offset by an increase in other current liabilities.

Net cash used in investing activities

Net cash used in investing activities for the year ended 31 December 2023 increased by $1.2 billion compared with 2022.

The increase mainly reflected an increase in expenditure on fixed assets and lower divestment proceeds, partly offset by a decrease in acquisitions, as the prior year included $3.0 billion for the acquisition of Archaea Energy.

Total capital expenditure for 2023 was $16.3 billion (2022 $16.3 billion), of which organic capital expenditure★ was $15.0 billion (2022 $12.5 billion). Inorganic capital expenditure includes $1.1 billion, net of adjustments, in respect of the TravelCenters of America acquisition. Sources of funding are fungible, but the majority of the group's funding requirements for new investment comes from cash generated by existing operations. For 2024-25 bp expects capital expenditure of around $16 billion per annum, in line with our medium-term target of $14-18 billion.

Total divestment and other proceeds for 2023 amounted to $1.8 billion, including $0.5 billion relating to the sale of the upstream business in Algeria and $0.3 billion relating to the disposal of bp's interest in the bp-Husky Toledo refinery. Other proceeds for 2023 consist of $0.5 billion of proceeds from the sale of a 49% interest in a controlled affiliate holding certain midstream assets onshore US.

Total divestment and other proceeds for 2022 amounted to $3.1 billion, including $0.7 billion relating to the formation of Azule Energy and $0.3 billion relating to the disposal of bp's interest in the Sunrise oil sands project in Canada. Other proceeds for 2022 consist of $0.6 billion of proceeds from the disposal of a loan note related to the Alaska divestment. The cash was received in the fourth quarter 2021, reported as a financing cash flow and was not included in other proceeds at the time due to potential recourse from the counterparty.

As at 31 December 2023, $17.8 billion of proceeds were received against our target of $25 billion of divestment and other proceeds between the second half of 2020 and 2025. bp continues to expect divestment and other proceeds of $2-3 billion in 2024.

Net cash provided by (used in) financing activities

Net cash used in financing activities for the year ended 31 December 2023 was $13.4 billion, compared with $28.0 billion in 2022. Compared with 2022, financing cash flows in 2023 primarily reflected higher proceeds from, and lower repayments of, long-term debt as a result of activity to manage the group's debt portfolio.

In 2023, 1,263 million of ordinary shares (2022 1,900 million) were repurchased for cancellation for a total cost of $7.9 billion (2022 $10.0 billion), including transaction costs of $43 million (2022 $54 million).

Total dividends paid to shareholders in 2023 were 27.760 cents per share, 4.83 cents higher than 2022. This amounted to total dividends paid to shareholders of $4.8 billion in 2023 (2022 $4.4 billion). The board decided not to offer a scrip dividend alternative in respect of the 2023 and 2022 dividends.

Debt

Finance debt at the end of 2023 increased by $5.0 billion from the end of 2022 primarily reflecting net long-term debt issuances. The finance debt ratio at the end of 2023 increased to 37.8% from 36.1% at the end of 2022.

Net debt at the end of 2023 decreased by $0.5 billion from the 2022 year-end position. Gearing at the end of 2023 decreased to 19.7% from 20.5% at the end of 2022. The decrease in net debt and gearing primarily reflected cash flows generated from operating activities during the year. Net debt and gearing are non-IFRS measures. See Financial statements – Notes 26 and 27 for further information on finance debt and net debt.

For information on financing the group's activities see Financial statements – Note 29 and Liquidity and capital resources on **page 340**.

★ See glossary on **page 373**

Group reserves and production[a]

	2023	2022	2021
Estimated net proved reserves (net of royalties)			
Liquids (mmb)	**3,747**	3,997	10,124
Natural gas (bcf)	**17,471**	18,481	39,615
Total hydrocarbons[b] (mmboe)	**6,759**	7,183	16,954
Of which:			
Equity-accounted entities[b]	**1,437**	1,381	10,065
Production (net of royalties)			
Liquids (mb/d)	**1,115**	1,214	1,951
Natural gas (mmcf/d)	**6,944**	7,101	7,915
Total hydrocarbons[c] (mboe/d)	**2,313**	2,438	3,316
Of which:			
Subsidiaries	**1,967**	2,000	1,994
Equity-accounted entities[c]	**345**	439	1,322

a Because of rounding, some totals may not agree exactly with the sum of their component parts.
b 2021 includes bp's share of Rosneft and Russia joint ventures. See Supplementary information on oil and natural gas on **page 247** for further information. See **page 347** for more information on bp's oil and gas reserves including the impact of events occurring after the end of the reporting period.
c 2022 and 2021 include bp's share of Rosneft and Russia joint ventures (2022 193mboe/d). See Oil and gas disclosures for the group on **page 348** for further information.

Total hydrocarbon proved reserves at 31 December 2023, on an oil equivalent basis, including equity-accounted entities, decreased by 6% compared with 31 December 2022 (8% decrease for subsidiaries and 4% increase for equity-accounted entities). Natural gas decreased by 5% (7% decrease for subsidiaries and 6% increase for equity-accounted entities).

There was a net increase from acquisitions and disposals of 31mmboe within our US and North Africa subsidiaries.

Total hydrocarbon production for the group was 5.1% lower compared with 2022. The decrease comprised a 1.6% decrease (5.2% decrease for liquids and 1.3% increase for gas) for subsidiaries and a 21.3% decrease (16.0% decrease for liquids and 35.9% decrease for gas) for equity-accounted entities. The production decrease in the equity-accounted entities is due to absence of bp share of production from Rosneft.

Excluding the impact of Rosneft, total hydrocarbon production for the group was 2.6% higher compared with 2022. The increase comprised a 1.6% decrease (5.2% decrease for liquids and 1.3% increase for gas) for subsidiaries and a 36.1% increase (51.8% increase for liquids and 1.0% decrease for gas) for equity-accounted entities.

Gas & low carbon energy

Gas & low carbon energy segment comprises our gas & low carbon businesses. Our gas business includes regions[a] with upstream activities that predominantly produce natural gas, integrated gas and power, and gas trading. Our low carbon business includes solar, offshore and onshore wind, hydrogen and CCS, and power trading. Power trading and marketing includes trading of both renewable and non-renewable power.

Financial and operating performance

	$ million		
	2023	2022[b]	2021[b]
Sales and other operating revenues[c]	**50,297**	56,255	30,840
Profit before interest and tax	**14,081**	14,688	2,166
Inventory holding (gains) losses★	**(1)**	8	(33)
RC profit before interest and tax	**14,080**	14,696	2,133
Net (favourable) adverse impact of adjusting items★[d]	**(5,358)**	1,367	5,395
Underlying RC profit before interest and tax★	**8,722**	16,063	7,528
Taxation on an underlying RC basis	**(2,730)**	(4,367)	(1,677)
Underlying RC profit before interest	**5,992**	11,696	5,851
Depreciation, depletion and amortization	**5,680**	5,008	4,464
Exploration write-offs	**362**	2	43
Adjusted EBITDA★[e]	**14,764**	21,073	12,035
Capital expenditure★			
Gas	**3,025**	3,227	3,180
Low carbon energy	**1,256**	1,024	1,561
	4,281	4,251	4,741

a The AGT and Middle East regions have been further subdivided by asset to allow reporting in either gas & low carbon or oil production & operations as appropriate.
b 2022 and 2021 include bp Bunge Bioenergia. From the first quarter of 2023, bp Bunge Bioenergia is reported within customers & products.
c Includes sales to other segments.
d See **page 338** for information on the cumulative impact of FVAEs.
e A reconciliation to RC profit before interest and tax is provided on **page 384**.

Financial results

Sales and other operating revenues for 2023 are lower than 2022 due to lower realizations and lower volumes (including the impact of the disposal of our Algeria business) partially offset by higher gas marketing and trading revenues.

RC profit before interest and tax for 2023 was $14,080 million compared with $14,696 million for 2022.

Items which bp has classified as adjusting for 2023 had a net favourable impact of $5,358 million including favourable fair value accounting effects (FVAEs)★ of $8,859 million, relative to management's view of performance, partially offset by net impairment charges. See Financial statements – Notes 4 and 16 for further information on net impairment charges.

After adjusting RC profit for the net impact of items which bp has classified as adjusting, underlying RC profit before interest and tax for 2023 was $8,722 million, compared with $16,063 million for 2022. The decrease reflects lower realizations, and a higher depreciation, depletion and amortization charge.

Items which bp has classified as adjusting for 2022 had a net adverse impact of $1,367 million including adverse FVAEs of $1,811 million, relative to management's view of performance, partially offset by a net impairment reversal.

See Financial statements – Note 5 for further information on segmental analysis.

Operational update

Reported production for 2023 was 929mboe/d, 2.9% lower than the same period in 2022. Underlying production★ for the full year was 2.3% lower, mainly due to base decline, partly offset by major projects★ delivery.

Renewables pipeline★ at the end of the year was 58.3GW (bp net). In 2023 the pipeline grew by 21.1GW, including bp being awarded the rights to develop two North Sea offshore wind projects in Germany (4GW), increases to Lightsource bp's pipeline (5.3GW), and an increase in dedicated hydrogen renewables (12.4GW).

In renewables by the end of 2023 we had brought 6.2GW (bp net) developed renewables to FID★.

Strategic progress

Gas

In Indonesia, we announced that the first cargo of liquefied natural gas (LNG) produced by the new third liquefaction train at the Tangguh LNG facility, in Papua Barat, Indonesia, was safely loaded and sailed in October. The start-up of Tangguh Train 3 has added 3.8 million tonnes per annum (mtpa) of gross LNG production capacity to the existing facility, bringing total plant capacity to 11.4mtpa gross.

In Australia, we purchased Shell's 27% interest in the offshore Browse project.

In India, the KGD6-MJ project offshore started at the end of June. Along with the two other KG D6 developments production is expected to account for around one third of India's current domestic gas production and meet approximately 15% of India's gas demand.

Gas & low carbon energy continued

In Trinidad, we restructured the ownership and commercial framework of Atlantic LNG joint venture with its partners Shell and the National Gas Company of Trinidad & Tobago. The restructuring helps provide the certainty required for sanctioning the next wave of upstream gas projects and secures the long-term LNG equity offtake for shareholders, including bp. In addition, we and our partner Shell, were awarded three deepwater exploration blocks off Trinidad's east coast.

In Senegal, we have exited the Cayar Offshore Profond production sharing contract and transferred operatorship of Yakaar-Teranga gas resource to Kosmos Energy.

In March 2023 we confirmed that, together with ADNOC, we made a non-binding offer to take NewMed Energy private through an acquisition of the free float and a partial acquisition of Delek's stake, which would result in bp and ADNOC holding 50% of NewMed Energy.

On 14 February 2024 bp announced the formation of a new joint venture in Egypt (bp 51%, ADNOC 49%) under which, subject to regulatory approvals, bp will contribute its interests in three non-operated development concessions as well as exploration agreements in Egypt, and ADNOC will make a proportionate cash contribution.

LNG portfolio

- In July bp and OMV announced the signing of a long-term agreement to supply up to 1mtpa of LNG for 10 years from 2026. This builds on bp in May agreeing 2bcm per year of regasification capacity for 20 years at the Gate terminal in Rotterdam.
- In September we announced our third long-term LNG offtake contract from Woodfibre's British Columbia LNG facility with firm offtake totalling 1.95mtpa and any additional production on a flexible offtake basis.
- In November we signed a nine-year sales and purchase agreement (SPA) with state-owned Oman LNG to buy one million metric tonnes per annum of LNG starting 2026.

See Oil and gas disclosures for the group on **page 342** for more information on oil and gas operations in the regions.

Low carbon energy

Hydrogen and carbon capture and storage

In hydrogen and carbon capture and storage (CCS), we progressed an additional 1.1mtpa net to bp of hydrogen opportunities for a total of 2.9mtpa to project pipeline (concept development stage).

Our progress in hydrogen is focused on growing scale in key regionally integrated markets, such as Europe and the US, using our refineries as demand anchors. As hydrogen markets develop, we aim to create a portfolio of globally advantaged supply hubs.

- In February 2023 we launched plans for a low carbon green hydrogen★ cluster called HyVal, at our Castellón refinery in the Valencia region of Spain.
- In the UK, in March 2023 we announced that two bp-led lower carbon projects, Net Zero Teesside Power and H2Teesside, part of the East Coast Cluster, were selected to proceed to negotiations for government support.
- In April we signed an agreement with Harbour Energy to take 40% stake in the Viking CCS project in the North Sea.
- In October in the US, the Midwest Alliance for Clean Hydrogen (MachH2), of which we are a member, was selected by the US Department of Energy's Office of Clean Energy.
- Demonstrations to develop a Regional Clean Hydrogen Hub. Under the proposals, it would include blue hydrogen★ production near our Whiting refinery.

Renewables and power

Offshore wind

In offshore wind, in 2023 we continued to build our position with access to the German and Korean markets in addition to the UK and US. These positions in offshore wind will enable us to leverage integration opportunities with green hydrogen, EV mobility and power trading as we build the business.

- In Scotland, we announced a successful bid in the Innovation and Targeted Oil and Gas (INTOG) Scottish offshore wind leasing round, bp's first step in floating offshore wind.
- In Korea, we announced the formation of a joint venture with Deep Wind Offshore to develop offshore wind opportunities in South Korea, which includes four projects across the Korean peninsula with a potential generating capacity of up to 6GW.
- In July we were awarded the rights to develop two North Sea offshore wind projects in Germany. The sites are located 130km and 150km offshore, in water depths of about 40m, and have a total potential generating capacity of 4GW, raising our global offshore wind pipeline to 9.3GW.
- In January 2024, we signed an agreement with Equinor under which we will restructure our US offshore wind project investments. Subject to approvals, we will be able to assume full ownership of the Beacon projects, and Equinor will assume full ownership of the Empire projects. bp plans to independently pursue future US offshore wind opportunities.

Onshore renewables

In solar, we announced we have agreed to acquire the remaining 50.03% of Lightsource bp (LSbp). LSbp is one of the world's leading developers and operators of utility-scale solar and battery storage assets, with 1,200 employees in 19 countries. LSbp has a hopper of 39GW of renewables pipeline and an additional 25GW of early stage opportunities. The transaction is expected to close in the second half of 2024, subject to regulatory approvals.

In support of hydrogen projects, the onshore renewables pipeline has increased by 12.4GW.

Power trading

In January 2024 we announced we have agreed to acquire GETEC ENERGIE GmbH, a leading independent supplier of energy to commercial and industrial customers in Germany, subject to regulatory approvals.

Estimated net proved reserves and production[a] (net of royalties)

	2023	2022	2021
Estimated net proved reserves (net of royalties)			
Crude oil[b] (mmb)	**128**	151	228
Natural gas liquids (mmb)	**1**	9	32
Total liquids★[c]	**129**	160	260
Natural gas[c] (bcf)	**8,635**	9,708	11,882
Total hydrocarbons★[c] (mmboe)	**1,618**	1,834	2,309
Of which equity-accounted entities[d]:			
Liquids (mmb)	**–**	–	–
Natural gas (bcf)	**–**	–	–
Total hydrocarbons (mmboe)	**–**	–	–
Production (net of royalties)			
Crude oil[b] (mb/d)	**92**	103	97
Natural gas liquids (mb/d)	**13**	15	16
Total liquids (mb/d)	**105**	118	113
Natural gas (mmcf/d)	**4,778**	4,866	4,632
Total hydrocarbons (mboe/d)	**929**	957	912
Of which equity-accounted entities[e]:			
Liquids (mb/d)	**2**	2	3
Natural gas (mmcf/d)	**–**	–	–
Total hydrocarbons (mboe/d)	**2**	2	3
Average realizations★[f]			
Liquids ($/bbl)	**77.03**	89.86	63.60
Natural gas ($/mcf)	**6.13**	8.91	5.11
Total hydrocarbons ($/boe)	**40.21**	56.34	33.75

a Because of rounding, some totals may not agree exactly with the sum of their component parts.
b Includes condensate and bitumen.
c Includes 2.2 million barrels of total liquids (3 million barrels at 31 December 2022 and 10 million barrels at 31 December 2021) and 430 billion cubic feet of natural gas (547 billion cubic feet at 31 December 2022 and 690 billion cubic feet at 31 December 2021) in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
d bp's share of reserves of equity-accounted entities in the gas & low carbon energy segment.
e bp's share of production of equity-accounted entities in the gas & low carbon energy segment.
f Realizations are based on sales by consolidated subsidiaries only – this excludes equity-accounted entities.

Renewables

	2023	2022	2021
Renewables (bp net, GW)			
Installed renewables capacity	**2.7**	2.2	1.9
Developed renewables to FID	**6.2**	5.8	4.4
Renewables pipeline	**58.3**	37.2	23.1
of which by geographical area:			
Renewables pipeline – Americas	**18.8**	17.0	16.2
Renewables pipeline – Asia Pacific	**21.3**	11.8	1.4
Renewables pipeline – Europe	**14.6**	8.3	5.3
Renewables pipeline – Other	**3.5**	0.1	0.2
of which by technology:			
Renewables pipeline – offshore wind	**9.3**	5.2	3.7
Renewables pipeline – onshore wind	**12.7**	6.3	–
Renewables pipeline – solar	**36.3**	25.7	19.4
Total developed renewables to FID and renewables pipeline	**64.5**	43.0	27.5

★ See glossary on **page 373**

Oil production & operations

Oil production & operations segment comprises regions[a] with upstream activities that predominantly produce crude oil, including bpx energy.

Financial and operating performance

	$ million		
	2023	2022	2021
Sales and other operating revenues[b]	**24,904**	33,193	24,519
Profit before interest and tax	**11,191**	19,714	10,509
Inventory holding (gains) losses★	**–**	7	(8)
RC profit before interest and tax	**11,191**	19,721	10,501
Net (favourable) adverse impact of adjusting items★	**1,590**	503	(209)
Underlying RC profit before interest and tax★	**12,781**	20,224	10,292
Taxation on an underlying RC basis	**(5,998)**	(9,143)	(4,123)
Underlying RC profit before interest	**6,783**	11,081	6,169
Depreciation, depletion and amortization	**5,692**	5,564	6,528
Exploration write-offs	**384**	383	125
Adjusted EBITDA★[c]	**18,857**	26,171	16,945
Capital expenditure★	**6,278**	5,278	4,838

a The AGT and Middle East regions have been further subdivided by asset to allow reporting in either gas & low carbon or oil production & operations as appropriate.
b Includes sales to other segments.
c A reconciliation to RC profit before interest and tax is provided on **page 384**.

Financial results

Sales and other operating revenues for 2023 were lower than 2022 mainly due to lower realizations.

RC profit before interest and tax for 2023 was $11,191 million compared with $19,721 million for 2022.

Adjusting items for 2023 had a net adverse impact of $1,590 million mainly relating to net impairment charges. See Financial statement – Note 4 for further information on net impairment charges.

After adjusting RC profit for the net adverse impact of adjusting items, underlying RC profit before interest and tax for 2023 was $12,781 million, compared with $20,224 million for 2022. The lower profit reflects lower realizations, and the impact of portfolio changes, partly offset by higher volumes.

Adjusting items for 2022 had a net adverse impact of $503 million principally relating to impairments as a result of expected portfolio changes, partially offset by gains on disposals, mainly arising from the contribution of our Angolan business to Azule Energy.

See Financial statements – Note 5 for further information on segmental analysis.

Operational update

Reported production for 2023 was 1,383mboe/d, 6.7% higher than the same period of 2022. Underlying production★ for the year was 6.3% higher compared with the same period of 2022 reflecting bpx energy performance and major projects★ and base performance.

Strategic progress

- Start-up of our fifth platform in the Gulf of Mexico, the Mad Dog Phase 2 Argos platform was announced (bp 60.5%, operator), with a gross production capacity of up to 140,000 barrels of oil per day.
- We successfully started production from the Seagull oil and gas field and spudded the first of two wells for the Murlach oil and gas field in the UK North Sea.
- We sanctioned the Argos Southwest Expansion project to tie back into the Argos facility.
- Bingo, the second central processing facility of bpx energy in the Permian Basin was successfully brought online.
- Partners approved the expansion of the Shell-operated Great White development in the Gulf of Mexico through a phased three-well campaign (bp 33.33%).
- The Azeri Central East (ACE) platform topsides unit was installed in the field and the first pre-drill well was spudded. This is the seventh and most automated platform installed in the giant Azeri Chirag Gunashli (ACG) field with approximately 100,000 barrels a day installed capacity.
- The contract was executed for the Bumerangue block (bp 100%), in the Santos Basin, in Brazil.
- We successfully bid on the Tupinambá block, an area of 3,056km² located in the Santos Pre-Salt Basin, in Brazil (bp 100%).
- Azule Energy signed a production sharing agreement for Block 31/21, which is a significant stride towards advancing exploration in the Lower Congo Basin.
- Azule Energy progressed four new exploration agreements in blocks adjacent to existing operations (46, 47, 14/23 and 18/15).

See Oil and gas disclosures for the group on **page 342** for more information on oil and gas operations in the regions.

Estimated net proved reserves and production[a] (net of royalties)

	2023	2022	2021
Estimated net proved reserves (net of royalties)			
Crude oil[b] (mmb)	**3,193**	3,380	3,872
Natural gas liquids (mmb)	**426**	457	361
Total liquids	**3,618**	3,836	4,234
Natural gas (bcf)	**8,836**	8,774	11,499
Total hydrocarbons★ (mmboe)	**5,142**	5,349	6,216
Of which equity-accounted entities[c]:			
Liquids (mmb)	**1,001**	968	795
Natural gas (bcf)	**2,527**	2,394	4,880
Total hydrocarbons (mmboe)	**1,437**	1,381	1,637
Production (net of royalties)			
Crude oil[b] (mb/d)	**910**	866	898
Natural gas liquids (mb/d)	**100**	86	81
Total liquids (mb/d)	**1,010**	952	978
Natural gas (mmcf/d)	**2,165**	1,998	1,903
Total hydrocarbons (mboe/d)	**1,383**	1,297	1,307
Of which equity-accounted entities[d]:			
Liquids (mb/d)	**269**	176	140
Natural gas (mmcf/d)	**432**	436	468
Total hydrocarbons (mboe/d)	**343**	251	221
Average realizations★[e]			
Liquids ($/bbl)	**72.09**	89.62	62.57
Natural gas ($/mcf)	**4.17**	10.46	5.49
Total hydrocarbons ($/boe)	**58.34**	82.23	55.65

a Because of rounding, some totals may not agree exactly with the sum of their component parts.
b Includes condensate and bitumen.
c bp's share of reserves of equity-accounted entities in the oil production & operations segment, which includes bp's share of reserves of Russia joint ventures in 2021. During 2023 gas operations in Angola, Argentina, Bolivia, Mexico and Norway were conducted through equity-accounted entities.
d bp's share of production of equity-accounted entities in the oil production & operations segment. 2022 and 2021 include bp's share of production of Russia joint ventures.
e Realizations are based on sales by consolidated subsidiaries only – this excludes equity-accounted entities.

★ See glossary on **page 373**

Customers & products

Customers & products segment comprises our customer-focused businesses, which include convenience and retail fuels, EV charging, as well as *Castrol*, aviation and B2B and midstream. It also includes our products businesses, refining & oil trading, as well as our bioenergy businesses.

Financial and operating performance

	$ million		
	2023	2022	2021
Sales and other operating revenues[a]	**160,215**	188,623	130,095
Profit before interest and tax	**2,993**	10,235	5,563
Inventory holding (gains) losses★	**1,237**	(1,366)	(3,355)
Replacement cost (RC) profit before interest and tax	**4,230**	8,869	2,208
Net (favourable) adverse impact of adjusting items★[b]	**2,183**	1,920	1,044
Underlying RC profit before interest and tax★	**6,413**	10,789	3,252
Of which:			
customers – convenience & mobility	**2,644**	2,966	3,052
Castrol – included in customers	**730**	700	1,037
products – refining & trading	**3,769**	7,823	200
Taxation on an underlying RC basis	**(1,454)**	(2,308)	(1,210)
Underlying RC profit before interest	**4,959**	8,481	2,042
Depreciation, depletion and amortization	**3,548**	2,870	3,000
Of which:			
customers – convenience & mobility	**1,736**	1,286	1,306
Castrol – included in customers	**167**	153	150
products – refining & trading	**1,812**	1,584	1,694
Adjusted EBITDA★[c]	**9,961**	13,659	6,252
Of which:			
customers – convenience & mobility	**4,380**	4,252	4,358
Castrol – included in customers	**897**	853	1,187
products – refining & trading	**5,581**	9,407	1,894
Capital expenditure★	**5,253**	6,252	2,872
Of which:			
customers – convenience & mobility	**3,135**	1,779	1,564
Castrol – included in customers	**262**	235	173
products – refining & trading	**2,118**	4,473	1,308

a Includes sales to other segments.
b See **page 338** for information on the cumulative impact of FVAEs.
c A reconciliation to RC profit before interest and tax by business is provided on **page 351**.

Financial results

Sales and other operating revenues in 2023 were lower than in 2022, mainly due to lower product and crude prices.

RC profit before interest and tax for 2023 was $4,230 million, compared with $8,869 million for 2022.

Items which bp has classified as adjusting for 2023 had a net adverse impact of $2,183 million (including adverse fair value accounting effects of $86 million – relative to management's view of performance), of which $1,614 million related to impairments of assets, which included an impairment of the Gelsenkirchen refinery. See Financial statement – Note 4 for further information on impairments.

After adjusting RC profit for the net adverse impact of items, which bp classified as adjusting, underlying RC profit before interest and tax was $6,413 million, compared with $10,789 million for 2022. The lower result primarily reflects the impact of lower refining margins and a lower oil trading performance.

Items which bp has classified as adjusting for 2022 had a net adverse impact of $1,920 million (including favourable fair value accounting effects of $309 million – relative to management's view of performance), of which $1,874 million related to impairment of assets, which included an impairment of the Gelsenkirchen refinery.

Customers – the convenience and mobility result, excluding *Castrol*, for 2023 was lower than 2022. The benefits of a strong convenience performance and higher volumes, were more than offset by higher costs, including increased expenditure in our transition growth★ engines, inflationary impacts and increased depreciation.

Castrol result for 2023 was higher than 2022, with higher margins partly offset by higher costs and adverse foreign exchange impacts.

Products – the result for 2023 was significantly lower than 2022. In refining, the result was primarily impacted by significantly lower industry refining margins, higher turnaround activity, albeit with a lower margin impact, partly offset by a lower level of unplanned maintenance activity. The contribution from oil trading was also significantly lower, as the first half of 2022 benefited from an exceptionally strong oil trading performance.

Operational update

bp-operated refining availability★ for the full year was 96.1%, higher compared with 94.5% in 2022, due to a lower level of unplanned maintenance activity.

Strategic progress

Convenience & retail fuels

In support of our convenience transition growth engine delivery, in May 2023, we completed our purchase of TravelCenters of America. It is one of the biggest networks of roadside travel centres in the US, adding a network of around 290 sites to our retail network, strategically located on major highways across the US. To support growing demand for lower carbon mobility solutions, over time we plan to expand and develop new offers, such as electric vehicle (EV) charging, biofuels, renewable natural gas and hydrogen.

Excluding TravelCenters of America, convenience performance was strong, with 9%[ab] convenience gross margin★ growth in 2023, compared to 2022 at constant foreign exchange. Strategic convenience sites★ grew to 2,850, an increase of more than 450 sites compared to 2022. In addition:

- In March 2023 we signed a new agreement with Rontec, one of the UK's largest roadside retail networks, to supply around two billion litres of fuel over the next five years to more than 60 of Rontec's sites.

- In July bp and Lekkerland extended their successful partnership to deliver *REWE To Go* stores at *Aral* retail sites until 2028. This is our largest European convenience supply agreement and brings together Germany's largest forecourt brand with one of the country's leading convenience specialists in support of our convenience growth engine delivery.
- In August we signed an agreement with Auchan to extend its successful strategic convenience partnership in Poland, with plans to add more than 100 EasyAuchan stores to its retail network by the end of 2025.
- In September 2023, we strengthened our BPme Rewards loyalty scheme with the launch of loyalty pricing, giving customers exclusive discounts on retail store products at around 300 bp-owned retail sites across the UK.
- In November we entered into an agreement to sell the Türkiye ground fuels business to Petrol Ofisi. This includes the group's interest in three joint venture terminals in Türkiye. Completion of the sale is subject to regulatory approvals.

EV charging

EV charging continues to show strong momentum. EV charge points★ installed and energy sold in the year grew by around 35% and 150% respectively, compared to 2022, with charge points now over 29,000. On 1 December bp and Iberdrola formed a joint venture to accelerate EV charging infrastructure roll-out in Spain and Portugal, with plans to invest up to €1 billion and install 5,000 fast★ EV charge points by 2025 and around 11,700 by 2030.
In addition:

- In March 2023 *bp pulse* announced a new global mobility agreement with Uber, which will see the companies work together to help accelerate Uber's commitment to become a global zero-tailpipe emissions mobility platform by 2040.
- In August we announced we had approved $500 million of investment in the US to begin building our EV network over the next two to three years. As part of this investment, in October 2023, we announced we had entered into an agreement with Tesla for the future purchase of $100 million of ultra-fast★ chargers.
- In September *bp pulse*, The EV Network and NEC Group, launched the UK's largest public EV charging hub at the NEC campus in Birmingham, UK. The new *Gigahub* at the NEC has capacity to charge up to 180 EVs simultaneously.
- In January 2024 we continued to invest in fast-growing southern districts in China, and acquired 3,000 charge points through the bp Xiajou joint venture.

Castrol

Castrol continued to grow its independent branded workshops, adding around 4,500 workshops in 2023, compared to 2022, with workshops now over 34,000 in total. *Castrol* also strengthened its market leading position in advanced EV-fluids, as now three out of four of the world's major vehicle manufacturers use *Castrol ON* products as part of their factory fill[c].

In addition:

- In June *Castrol* signed a strategic co-operation protocol with Yiwu TNFia, one of the largest automobile service chains in East China, positioning *Castrol* to expand its share of products in Yiwu TNFia's large and growing network of auto workshops.

Castrol continued to invest in its technology centres in 2023:

- In May *Castrol* opened its new EV lab at *Castrol* China Technology Centre in Shanghai, to focus on developing and testing EV fluids. The expansion supports bp's strategy to drive lower-carbon mobility in China and to help customers achieve their sustainability goals.
- In September *Castrol* opened the *Castrol* Americas Technology Center, in Wayne, New Jersey. This is a 12,000 square foot, state-of-the-art laboratory to develop and test fluids for EVs, engine and driveline oils and industrial lubricants.

Bioenergy

In October bp's Archaea Energy announced the official start-up of its original Archaea Modular Design (AMD) renewable natural gas plant in Medora, Indiana, located next to a landfill site owned by Rumpke Waste and Recycling.

- In December bp's Archaea Energy announced it had brought two more renewable natural gas plants online, the Monty plant in Kentucky and the Red Top plant in California.

In addition:

- In February 2023 bp and BHP, one of the world's largest iron ore producers, announced a partnership to trial the use of blended diesel with hydrogenated vegetable oil (HVO) to assist BHP to reduce carbon emissions from its iron ore operations in Western Australia.
- In March 2023 Air bp announced the first sale of International Sustainability and Carbon Certification (ISCC) EU sustainable aviation fuel produced at bp's Castellón refinery in Spain, to the LATAM Group, one of Latin America's largest airlines.
- In April our Rotterdam refinery in the Netherlands, became the first bp refinery to co-process Nuseed Carinta Oil as part of our partnership with Nuseed. Nuseed Carinata Oil is a sustainable low carbon biofuel feedstock which we plan to use in our refineries, as well as onward marketing.
- In November Air bp collaborated with Virgin Atlantic, Rolls Royce, Boeing, and others, to fuel the first 100% sustainable aviation fuel (SAF) transatlantic flight by a commercial airline. The SAF was a blend derived from inputs supplied by Air bp and Virent. Together, this enabled up to 70% lifecycle carbon emission savings compared to the conventional jet fuel it replaced.

Refining

We continue to high grade our portfolio:

- On 28 February 2023 bp completed the sale of its 50% interest in the bp-Husky Toledo refinery in Ohio, US, to Cenovus Energy, its partner in the facility.
- In May our Cherry Point refinery in the US successfully commissioned the hydrocracker improvement project and cooling water infrastructure project. The new vacuum tower and cooling water tower are now online and are expected to improve availability, reduce maintenance costs and CO_2 emissions.

a **Nearest equivalent IFRS measure to change in convenience gross margin**: Change in replacement cost profit before interest and tax for the customers & products segment is -52% for 2023 compared with 2022.

b At constant foreign exchange – values are at end 2023 foreign exchange rates, excluding TravelCenters of America and adjusted for other portfolio changes.

c Based on GlobalData report for 2023 for top 20 selling global OEMs (total new vehicle sales).

★ See glossary on **page 373**

Other businesses & corporate

Other businesses & corporate comprises innovation & engineering, bp ventures, launchpad, regions, corporates & solutions, our corporate activities & functions and any residual costs of the Gulf of Mexico oil spill. From the first quarter 2022 the results of Rosneft, previously reported as a separate segment, are also included in other businesses & corporate. For more information see Financial statements – Note 1 Significant accounting policies, judgements, estimates and assumptions – Investment in Rosneft.

Financial and operating performance

	$ million		
	2023	2022	2021
Sales and other operating revenues[a]	**2,657**	2,299	1,724
Profit (loss) before interest and tax	**(903)**	(26,737)	(89)
Inventory holding (gains) losses★	**–**	–	(259)
Replacement cost (RC) profit (loss) before interest and tax	**(903)**	(26,737)	(348)
Net (favourable) adverse impact of adjusting items★[b]	**37**	25,566	1,685
Underlying RC profit (loss) before interest and tax★	**(866)**	(1,171)	1,337
Taxation on an underlying RC basis	**322**	439	25
Underlying RC profit (loss) before interest	**(544)**	(732)	1,362
Depreciation, depletion and amortization	**1,008**	876	813
Capital expenditure★	**441**	549	397

a Includes sales to other segments.
b See **page 338** for information on the cumulative impact of FVAEs.

Financial results

RC loss before interest and tax for 2023 was $903 million, compared with $26,737 million for 2022.

Adjusting items for 2023 had a net adverse impact of $37 million. Adjusting items include impacts of fair value accounting effects, which were a favourable impact of $630 million. Adjusting items also include impacts of environmental charges, which were an adverse impact of $604 million.

Adjusting items for 2022 had a net adverse impact of $25,566 million mainly relating to bp's decision to exit its 19.75% shareholding in Rosneft and including adverse fair value accounting effects of $1,381 million.

After adjusting RC profit for the adjusting items, underlying RC loss before interest and tax for 2023 was $866 million, compared with a loss of $1,171 million for 2022, reflecting increased interest income.

Strategic progress

We continued to invest in a portfolio of technology businesses, which we see as having the potential for high growth and to benefit and extend our transition growth★ engines, through bp ventures. Strategically significant investments made through 2023 include:

- In April Magenta Mobility, one of India's largest providers of electric mobility for last-mile delivery, the journey from hub to customer.
- In April Service4Charger, a Germany-based provider of intelligent, scalable e-mobility solutions and full-service implementation, including the planning, installation, operation and maintenance of charging infrastructure for electric vehicles (EVs).
- In June WasteFuel, a US biofuels company, which is planning to develop a global network of plants to convert municipal and agricultural waste into bio-methanol, a biofuel that could play a significant role in decarbonizing hard-to-abate sectors like shipping.
- In July Electric Hydrogen, a US based developer of high-efficiency and lower cost electrolyzers with the aim of delivering its first 100MW product in 2024.
- In August Dynamon, a UK-based software company, which provides advanced data analytics and simulation software tools that help transport and logistics companies adopt low carbon energy solutions such as EV charging infrastructure as they look to electrify their fleets.
- In August Advanced Ionics, a US-based company developing a new category of hydrogen electrolyzers, supporting the expansion of green hydrogen★ production.

In 2022 we took the decision to no longer seek new companies for bp's launchpad accelerator, with our focus now to scale and build businesses within our five transition growth engines – bioenergy, convenience, EV charging, renewables & power and hydrogen.

Other businesses & corporate excluding Rosneft

	$ million		
	2023	2022	2021
Profit (loss) before interest and tax	**(903)**	(2,704)	(2,777)
Inventory holding (gains) losses	**–**	–	–
Replacement cost (RC) profit (loss) before interest and tax	**(903)**	(2,704)	(2,777)
Net (favourable) adverse impact of adjusting items	**37**	1,533	1,394
Underlying RC profit (loss) before interest and tax	**(866)**	(1,171)	(1,383)
Taxation on an underlying RC basis	**322**	439	294
Underlying RC profit (loss) before interest	**(544)**	(732)	(1,089)

Rosneft

	$ million		
	2023	2022	2021
Profit (loss) before interest and tax	**–**	(24,033)	2,688
Inventory holding (gains) losses	**–**	–	(259)
Replacement cost (RC) profit (loss) before interest and tax	**–**	(24,033)	2,429
Net (favourable) adverse impact of adjusting items	**–**	24,033	291
Underlying RC profit (loss) before interest and tax	**–**	–	2,720
Taxation on an underlying RC basis	**–**	–	(269)
Underlying RC profit (loss) before interest	**–**	–	2,451

	2023	2022	2021
Estimated net proved reserves (net of royalties) (bp share)			
Crude oil[a] (mmb)	**–**	–	5,490
Natural gas liquids (mmb)	**–**	–	140
Total liquids★[b]	**–**	–	5,630
Natural gas[c] (bcf)	**–**	–	16,233
Total hydrocarbons★ (mmboe)	**–**	–	8,429
Production[d] (net of royalties)			
Crude oil[a] (mb/d)	**–**	144	857
Natural gas liquids (mb/d)	**–**	–	3
Total liquids (mb/d)	**–**	144	860
Natural gas (mmcf/d)	**–**	238	1,380
Total hydrocarbons (mboe/d)	**–**	185	1,098

a Includes condensate.
b Includes 396mmb at 31 December 2021 for the 7.04% non-controlling interest in Rosneft-held assets in Russia including 22 million barrels at 31 December 2021 held through bp's interests in Russia other than Rosneft.
c Includes 1,656bcf at 31 December 2021 for the 10.01% non-controlling interest in Rosneft-held assets in Russia including 621bcf at 31 December 2021 held through bp's interests in Russia other than Rosneft.
d 2022 reflects bp's estimated share of Rosneft production for the period 1 January to 27 February only. The estimated share of production for that period has been averaged over the full year.

Sustainability at bp

Our sustainability frame translates our purpose into action and underpins our strategy to become an integrated energy company. It focuses on three areas – getting to net zero, improving people's lives and caring for our planet.

Reporting on sustainability

In this section, we cover selected sustainability issues along with information in the following areas:

- Getting to net zero, see **pages 48-51**
- Improving people's lives, see **page 53**
- Caring for our planet, see **page 54**
- Climate-related financial disclosures, see **pages 55-68**
- Our approach – safety, ethics and compliance, our people, 'Who we are' (our beliefs), see **pages 69-72**

We report on our progress embedding sustainability and delivering our frame in our latest sustainability report at **bp.com/sustainability**

Getting to net zero

Our ambition to be a net zero company by 2050 or sooner, and to help the world get to net zero, remains unchanged.

We have worked to deliver our 10 net zero aims since we launched them in 2020. We believe our ambition and aims, taken together, are consistent with the goals of the Paris Agreement.

By setting a path that enables us to make a positive contribution, working to build and participate in many of the new net zero value chains the world will need, our ambition and aims support the world's progress towards the Paris Agreement.

Read more on consistency with the Paris goals on **page 14**

Net zero performance

Progress against our five aims to help bp get to net zero in 2023.

Aim	Measure/coverage	2023 performance	2025 target	2030 aim	2050, or sooner, aim
1 Net zero operations★	Scope 1 and 2★	41%[a]	20%[a]	50%[a]	Net zero★
2 Net zero production★	Scope 3★	13%[a]	10-15%[a]	20-30%[a]	Net zero
3 Net zero sales★	Average lifecycle carbon intensity	3%[b]	5%[b]	15-20%[b]	Net zero
4 Reducing methane	Methane intensity★	0.05%[c]	0.20%[d]	50% reduction[d]	
5 More $ into transition	Transition growth investment★	$3.8bn	$6-8bn	$7-9bn	

1

Aim 1 is to be net zero across our entire operations on an absolute basis by 2050 or sooner.

We are targeting a 20% reduction in our aim 1 operational emissions by 2025 and aim for a 50% reduction by 2030 against our 2019 baseline of 54.5MtCO_2e[e].

Our combined Scope 1 and 2 emissions, covered by aim 1 were 32.1MtCO_2e – a decrease of 41% from our 2019 baseline of 54.5MtCO_2e[f]. The total decrease includes 17.9MtCO_2e attributable to divestments and 5.0MtCO_2e in sustainable emission reductions (SERs)★.

Scope 1 (direct) emissions, covered by aim 1, were 31.1MtCO_2e – an overall increase from 30.4MtCO_2e in 2022. Of these Scope 1 emissions, 30.2MtCO_2e were carbon dioxide and 1.0MtCO_2e methane[g]. Overall emissions increased due to temporary operational changes, project start-ups and growth, which was partially offset by delivery of SERs and divestments.

In 2023 our Scope 2[f] (indirect) emissions, covered by aim 1, decreased by 0.4MtCO_2e, to 1.0MtCO_2e, compared with 2022. Lower carbon power agreements, including those at our Cherry Point and Whiting refineries, contributed to this decrease.

We report our Scope 1 and 2 emissions on an operational control and equity share basis in our ESG datasheet.

bp.com/ESGdata

a Reduction in absolute emissions against 2019 baseline.
b Reduction in the average carbon intensity of sold energy products against the 2019 baseline. The percentage change is calculated from the source data instead of the rounded carbon intensity number.
c Methane intensity is calculated using our existing methodology and, while it reflects progress in reducing methane emissions, will not directly correlate with progress towards delivering the 2025 target under aim 4.
d The 0.20% methane intensity target is based on our measurement approach. The 50% reduction we are aiming for is against a new baseline which we plan to set based on the new measurement approach. Methane intensity is currently calculated using our existing methodology.
e Changed from 54.4MtCO_2e for consistency in rounding.
f Scope 2 emissions on a market basis.
g Due to rounding some totals may not equal the sum of their component parts. This does not affect the underlying values.

(2)

Aim 2 is to be net zero on an absolute basis across the carbon in our upstream★ oil and gas production★ by 2050 or sooner.

This is our Scope 3 aim and it is based on bp's net share of production[h] (around 361MtCO_2 in 2019). It is associated with the CO_2 emissions from the assumed combustion of upstream production of crude oil, natural gas and natural gas liquids (NGLs).

We are targeting a 10-15% reduction by 2025 and will aim for 20-30% by 2030 against our 2019 baseline, underpinned by our aim to reduce our oil and gas production from 2019 levels by around 25% by 2030.

The estimated Scope 3 emissions from the carbon in our upstream oil and gas production were 315MtCO_2 in 2023, a slight increase from 307MtCO_2 in 2022, mainly associated with an increase in underlying production★ due to the ramp-up of major projects★ and higher asset performance.

Since 2019 our estimated Scope 3 emissions covered by aim 2 have reduced by 13%, which is around the mid-range of our 2025 target of a 10-15% reduction against our 2019 baseline. Our plans and forward path for emissions covered by aim 2 will take into account growth in underlying production due to major project start-ups out to 2025, deferred divestments and growth in bpx energy production.

(3)

Aim 3 is to reduce to net zero the average carbon intensity of sold energy products★ by 2050 or sooner.

This aim applies to the average carbon intensity of sold energy products. It is estimated on a lifecycle (full value chain) basis from the use, production, and distribution of sold energy products per unit of energy (MJ) delivered.

In 2023 the average carbon intensity of the energy products we sell was 77gCO_2e/MJ.

Average carbon intensity of sold energy products (gCO_2e/MJ)[i,j,k]

	2023	2022	2021	2020	2019
Average carbon intensity of sold energy products	**77**	77	78	77	79
Refined energy products★	**92**	92	92	92	95
Gas products	**67**	67	67	67	68
Bioproducts	**40**	43	43	44	47
Power products	**50**	52	56	58	56

This represents a 3%[l] decrease from our 2019 baseline, driven by changes in the sold product mix, methodology updates and the impact of portfolio changes such as the full year accounting of sales by EDF Energy Services.

(4)

Aim 4 is to install methane measurement at all our existing major oil and gas processing sites by 2023, publish the data, and then drive a 50% reduction in methane intensity★ of our operations.

We will work to influence our joint ventures★ to set their own methane intensity targets of 0.2%.

We maintained our methane intensity at 0.05% in 2023[c]. Methane emissions from upstream operations, used to calculate our intensity, increased by around 10% from 28kt in 2022 to 31kt in 2023. This increase is primarily from changes in flaring in our Azerbaijan-Georgia-Türkiye region and Tangguh operations. It was offset by methane emissions reductions from delivery of SERs. Marketed gas volumes increased by 4% to 3,332bcf in 2023.

We intend to take stock of our targets under aim 4 based on what we learn from our ongoing methane measurement activities and to take account of the Oil & Gas Decarbonization Charter announced at COP28, which we signed in 2023. The Charter includes aims to achieve net zero operations by or before 2050, and zero routine flaring and near-zero methane emissions by 2030.

(5)

Aim 5 is to increase the proportion of investment we make into our non-oil and gas businesses.

In 2023 transition growth investment★ was $3.8 billion. This compares to $0.6 billion in 2019 and $4.9 billion in 2022. It represents around 23% of total capital expenditure★ for the year, which compares to around 3% in 2019 and around 30% in 2022. The change from 2022 reflects lower inorganic investment in our transition growth★ engines, outweighing an increase in organic investment in them over 2023.

As we highlighted in our 2022 report, it is not always possible to predict the timing of our capital investments, which means the progress we make on aim 5 can be expected to fluctuate – as it did between 2021 and 2023. Some of our capital investment goes into large transactions – for example, our acquisitions of Archaea Energy and EDF Energy Services in 2022 and TravelCenters of America in 2023. This is true both for the level of investment and for the proportion of our overall investment going into our transition growth engines, or into the low carbon activity★ subset.

Our disciplined approach to capital investment means that individual investments will be made when we consider there to be a clear and compelling business case, in line with our balanced set of investment criteria, see **page 30**.

Aim 5 transition growth investment
(annual $ billion)

	2023	2022	2021	2020
More $ into the transition	3.8	4.9	2.4	1.0

h Excluding bp's share of production in Rosneft. On 27 February 2022, bp announced that it intends to exit its 19.75% shareholding in Rosneft Oil Company (Rosneft). bp ceased equity accounting for Rosneft from this date.
i See the *bp Basis of Reporting 2023* for more information on the list of energy products covered at bp.com/basisofreporting.
j The aggregate lifecycle emissions and energy values used in the calculation of the average carbon intensity of sold energy products are provided in our ESG datasheet at bp.com/ESGdata.
k Previously reported aim 3 figures for the period 2019-2022 have been restated to correct misstatements in sales data identified through business reviews and digital improvement projects.
l The percentage change is calculated from the source data instead of the rounded carbon intensity number.

6

Aim 6 is to more actively advocate for policies that support net zero, including carbon pricing.

Our advocacy focused on several themes during 2023, including stronger methane emissions standards, and the need for increased climate policy and regulation, as well as policy frameworks that support growth in low carbon hydrogen, renewables and power, bioenergy and decarbonizing transportation.

We have improved the transparency of our advocacy for global climate policy by publishing our high-level climate policy positions and examples of our relevant activities.

We publish examples of our activity in support of aim 6 online at **bp.com/advocacyactivities**.

7

Aim 7 is to incentivize our global workforce to deliver on our aims and mobilize them to become advocates for net zero.

This will include continuing to allocate a percentage of remuneration linked to emissions reductions for leadership and around 36,400[a] employees. Our annual bonus for all eligible employees, including the bp leadership team, has been linked to a sustainability measure since 2019.

The bonus scorecard against which our eligible employees are measured incentivizes them through three themes: safety and sustainability (30% of which sustainability makes up 15%); operational performance (20%); and financial performance (50%). For 2024 our sustainability measure[b] is now linked to our operated carbon emissions, which will cover all increases and decreases in those emissions over the year. This measure covers the same Scope 1 and 2 emissions reported under aim 1 (net zero operations).

Our 2022-24 long-term incentive plan scorecard also links performance to progress on Scope 1 and 2 emissions in our aim 1 and, for group leaders[c], two social measures are included – on employee engagement, and on improved ethnic minority representation in our senior-level leader[d] and above population.

As with the bonus scorecard, for 2024-26 we have adopted an absolute percentage reduction in operational emissions against our 2019 baseline as the basis for measuring our progress against aim 1 in our long-term scorecard. This means that collectively, 35% of our long-term incentive plan for group leaders is linked to sustainability-related measures.

Directors' remuneration report, **page 105** and Share ownership, **page 71**

8

Aim 8 is to set new expectations for our relationships with trade associations around the globe.

We will make the case for our views on climate change within the associations we belong to, and we will be transparent where we differ. And where we can't reach alignment, we are prepared to leave.

We periodically assess the alignment of key associations with our position on climate. Our priority is to influence within trade associations, but we may publicly dissent or resign our membership if there is material misalignment on high-priority issues.

In 2023 we reviewed the progress of the 10 associations which had been found to be 'partially aligned' in 2022 and we made a case for action in support of our position on climate.

bp.com/tradeassociations

9

Aim 9 is to be recognized as an industry leader for the transparency of our reporting.

On 12 February 2020 we declared our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

Since 2021 we have reported in line with the FCA Listing Rule LR 9.8.6(8). It requires us to report on a 'comply or explain' basis against the TCFD Recommendations and Recommended Disclosures. We consider our 2023 climate-related financial disclosures to be consistent with all of the TCFD Recommendations and Recommended Disclosures. For 2023 we also reported in line with the Companies (Strategic Report) Climate-related Financial Disclosure Regulations 2022 (The UK CFD Regulations).

We continued to take steps to promote stakeholders' access to comparable and decision-useful climate-related disclosures.

We have participated in the development of carbon and net zero standards and benchmarks. Whether or not we agree with a particular methodology, we welcome the perspectives they can provide.

We support work to align global reporting standards and want to play our part in the development of high-quality, reliable, comparable standards that enable companies to prepare and disclose information that is material and decision-useful to stakeholders. In 2023 we continued sharing our views with standard setters and others who are working on the development of ESG reporting standards across different jurisdictions, including the US, Europe and UK.

Climate-related TCFD disclosures, **page 55**

10

Aim 10 is to provide integrated clean energy and mobility solutions.

Our regions, corporates and solutions team is working to help countries, cities and corporations around the world decarbonize.

Our focus is on working with corporates in sectors that have significant emissions and are not straightforward to decarbonize, such as heavy industry and logistics. For example, in Teesside in the UK, remediation work on the former Redcar steelworks has commenced, with plans to locate Net Zero Teesside Power there.

bp.com/rcs

a This figure reflects the number of employees eligible for a cash bonus in 2023. The number of eligible employees in 2022 was 32,000.
b This measure was previously linked to SERs★.
c Group leaders are our most senior leaders. Their roles include operational, functional and regional leadership.
d Senior leaders are the leadership tier below group leaders. They typically manage larger teams or are recognized as technical or functional experts.

Streamlined energy and carbon reporting (SECR) information

Further information on our greenhouse gas (GHG) emissions, energy consumption and energy efficiency is set out here and on the following page. It includes disclosures in respect of the SECR requirements. Further breakdown of our GHG and energy data is available in our ESG datasheet at **bp.com/ESG**

Operational control[a,b]	Unit	**2023**	2022	2021
Scope 1 (direct) emissions	$MtCO_2e$	**31.1**	30.4	33.2
UK and offshore	$MtCO_2e$	**1.0**	1.0	1.0
Global (excluding UK and offshore)	$MtCO_2e$	**30.1**	29.4	32.1
Scope 2 (indirect) emissions – location-based	$MtCO_2e$	**2.0**	2.1	2.4
UK and offshore	$MtCO_2e$	**0.02**	0.02	0.03
Global (excluding UK and offshore)	$MtCO_2e$	**1.9**	2.0[c]	2.4[d]
Scope 2 (indirect) emissions – market-based	$MtCO_2e$	**1.0**	1.4[f]	2.4
UK and offshore	$MtCO_2e$	**0.0**[e]	0.0[f]	0.0[f]
Global (excluding UK and offshore)	$MtCO_2e$	**1.0**	1.4[d]	2.4
Energy consumption[g]	GWh	**124,770**	121,697	128,805
UK and offshore	GWh	**4,688**	4,376	4,386
Global (excluding UK and offshore)	GWh	**120,082**	117,321	124,419
Ratio of Scope 1 (direct) and Scope 2 (indirect) emissions to gross production[h]	$teCO_2e/te$	**0.16**	0.15	0.17
UK and offshore	$teCO_2e/te$	**0.13**	0.12	0.13
Global (excluding UK and offshore)	$teCO_2e/te$	**0.16**	0.15	0.17

a Operational control data comprises 100% of emissions from activities operated by bp, going beyond the Ipieca guidelines by including emissions from certain other activities such as contracted drilling activities. Read more at bp.com/basisofreporting.
b Due to rounding some totals may not agree exactly to the sum of their component parts.
c Restated due to IEA emission factor library update.
d Restated due to consistency of rounding.
e 2023 reflects REGOs that had not been retired at the time of publication but are expected to be retired subject to business decisions at the end of the compliance period 31 July 2024.
f Updated to reflect use of renewable energy in UK and offshore in 2022 and 2021.
g Energy content of flared or vented gas is excluded from energy consumption reported as although it reflects loss of energy resources, it does not reflect energy use required for production or manufacturing of products.
h Gross production comprises upstream production, refining throughput and petrochemicals produced.

★ See glossary on **page 373**

Streamlined energy and carbon reporting (SECR) information continued

Energy efficiency measures

Since 2016 we have delivered 8.9MtCO_2e of sustainable emissions reductions★ (SERs) across our operated sites.

This is our key metric for tracking annual reductions in GHG emissions from energy efficiency savings and direct GHG emissions.

A total of 172 SERs projects in 2023 contributed to reductions of 0.9MtCO_2e. This is in addition to the 152 SER projects and associated reduction of 1.5MtCO_2e in 2022. Those included reduced fuel consumption in the North Sea, waste heat recovery in the Azerbaijan-Georgia-Türkiye (AGT) region and the automation of gas turbine generators, also known as power export optimization, in Oman. It also included projects across bpx energy sites in the US Permian Basin for example, electrification and removal of existing compressors to reduce fuel use.

Energy efficiency activities in 2023 included:

- The implementation of bottom-up approaches to energy forecasting and management so our employees at sites better understand the energy balance of production assets. This has enabled them to avoid emissions by reducing the amount of additional equipment running for a given throughput of oil and gas.
- The creation of a global energy dashboard for refining within bp Solutions to enable real-time performance management at sites. The tool is currently available for use by the energy sub-discipline network, which includes bp Solutions and site energy engineers.
- **bpx energy:** projects focused on improving energy efficiency, including further electrification in Texas, conversion of continuous chemical treatment to a batch process reducing energy demand, and installation of solar air compressors to reduce reliance on imported electricity. The connection of multiple wells to our Bingo central delivery point reduces wellsite footprint and results in infrastructure emission reductions. The facility also utilizes instrument air instead of natural gas to operate pneumatic devices. In Eagle Ford, the Hawkville North East central facility point is undergoing an expansion to replace natural gas-driven compressors with electric-driven compressors. bpx energy has also been decommissioning legacy central delivery points that use natural gas-driven pneumatics and compressors and reroute them through a new central delivery point, utilizing electric-driven equipment.
- **Refining:** projects delivered across refining included cooling water infrastructure and hydrocracker improvement projects to reduce emissions and production optimization at Lingen.
- **North Sea:** operations have delivered a series of compressor optimization projects. ETAP has upgraded a gas turbine generator with a new combustion system that maintains power output and reduces fuel demand. Clair Ridge has optimized compressor discharge pressure to reduce compression power demand while still maintaining stable production rates.
- **Gulf of Mexico:** projects included turbine generator controls upgrades to reduce fuel consumption, trialling a reduced spinning reserve (see definition in next paragraph), LED light replacement and water injection pump optimization. Optimization assessments conducted on drilling operations at Mad Dog have reduced the number of diesel generators being used on site. Equipment upgrades are taking place across Thunder Horse with the replacement of older T-Gens units with more energy efficient ones. Alongside this, the pressure of export gas compressors is being lowered, resulting in slightly lower power requirements.

As part of managing energy efficiency, we take a portfolio-wide approach to assessing and prioritizing spinning reserve reduction opportunities. Spinning reserve involves running additional power generation machines to provide an excess of energy supply. This can help to protect production from plant vulnerabilities, including power generation reliability. Reducing spinning reserve can increase exposure to power fluctuations for production. We take a risk-based approach when considering reducing the number of running machines. This allows bp to realize emissions and maintenance cost reductions from fewer running machines, while managing the associated production risk.

In production and operations we held energy and carbon workshops in the North Sea, Tangguh, AGT and the Gulf of Mexico. Each refinery developed draft plans for what it plans to do for energy reduction between now and 2030. These ideas are across maintenance, optimization and projects.

In 2023 we finished developing our real-time digital carbon and energy dashboards for all refineries to monitor energy performance and alert employees when energy use is high. In refining we held workshops at Whiting and Gelsenkirchen to develop new energy reduction ideas. These ideas were then prioritized and developed at Whiting and Gelsenkirchen, and introduced at Cherry Point.

bp is involved in several external groups working on energy efficiency, including the Oil & Gas Climate Initiative (OGCI), the International Association of Oil & Gas Producers (IOGP) and Energy Star. We run an annual training course for new chemical engineers, which includes energy efficiency and we offer GHG emissions and energy efficiency training for more experienced engineers and practitioners.

Reporting methodology

Our approach to reporting GHG emissions broadly follows the Ipieca, API, IOGP Petroleum Industry Guidelines and the GHG Protocol for Reporting GHG Emissions. We calculate GHG emissions based on fuel consumption and fuel properties for major sources, such as flares.

We report CO_2 and methane. We do not include nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride as they are not material to our operations and it is not currently practical to collect this data at scale.

Energy consumption is monitored and reported centrally from all operated sites by fuel type. This includes all energy, both imported and self-produced, used to run our operations and aligned with our GHG reporting boundary, but excludes energy content of flared or vented gas. Although flaring and venting reflects loss of energy resources, it does not reflect energy use required for production or manufacturing of products.

Ratio of Scope 1 and Scope 2 emissions to gross production

bp reports a ratio of Scope 1 and Scope 2 emissions to gross production, see SECR table on **page 51**. This covers all our Scope 1 and Scope 2 emissions on an operational control boundary basis and uses gross operated sales from our operated oil and gas facilities, refinery throughput and petrochemicals produced. The denominator uses output from production businesses, refineries and petrochemical facilities, which account for 96% of total operated emissions. The intensity ratio has improved due to our aim 1 reductions, as described on **page 48**.

The ratio provided in the SECR table uses production and throughput from our operated upstream, refining and chemicals businesses as a measure of output which can be consistently reported against. We report data on a consolidated basis in the *Annual Report and Form 20-F* and this differs to the production and throughput used for the ratio in the SECR table, which aligns with the operated emissions reporting boundary.

Improving people's lives

Our aims provide focus and structure for the actions we take to improve people's lives whether they work for bp, for our suppliers, or live in communities close to our operations.

These aims are focused on how we think bp can make the biggest difference in the places where we work. They build on strong social impact and risk management requirements and guidance in our Operating Management System (OMS)★.

For detailed information on our aims 11-15 and performance in 2023, see **bp.com/sustainability**

11

Our **aim 11** is to develop enough clean energy to benefit more than 36 million people.

What we've achieved

- Brought 0.4GW to FID in 2023, for a total of 6.2GW[a].
- Our renewables projects pipeline at the end of 2023 was 58.3GW (bp net), an increase of 21.1GW from 2022. This included 4GW in offshore wind, 5.3GW in solar and an increase in dedicated hydrogen renewables of 12.4GW.
- Supported projects to enable access to lower carbon, affordable energy in local communities in Indonesia and Angola.

12

Our **aim 12** is to support a just energy transition that advances human rights and education.

What we've achieved

- Engaged with local communities as we developed hydrogen and CCS projects with JV partners in Teesside (UK) and various projects in Western Australia, to help better understand their needs.
- Improved risk assessment tool for security and human rights. Using this tool, we identified security and human rights risks at 30 of 230 operated assets and put in place relevant measures to prevent or mitigate them.

13

Our **aim 13** is helping more than one million people build sustainable livelihoods and resilience.

What we've achieved

- Our analysis confirmed that in 2023, as in 2022, we paid all our employees a fair wage[b] (in determining which, we take account of factors such as local market conditions).
- Reviewed the impact and alignment with our aims of our existing social investment portfolio.

14

Our **aim 14** is greater diversity, equity and inclusion for our workforce and customers, and to increase supplier diversity spend to $650 million for US-related spend[c].

What we've achieved

- Launched a global initiative to encourage our employees to voluntarily disclose their identity data in our HR systems (where legally permissible to do so).
- Delivered Race4Equity training to almost 100% of our senior leaders and committed more than $4 million to offer scholarships and industry experience at three historically Black US colleges to provide career development support.

15

Our **aim 15** is to enhance the health and wellbeing of our employees, contractors and local communities.

What we've achieved

- Continued to promote our global wellbeing platform Thrive@bp and implemented new platforms for employees in the US and China.
- Launched a number of health and wellbeing campaigns globally for both employees and the communities in which we operate including in India, where *Castrol* is running initiatives for truck drivers.

Human rights

We believe everyone deserves to be treated with fairness, respect and dignity. We strive to conduct our business in a responsible way, respecting the human rights of our employees and everyone we come into contact with.

Our human rights policy and our code of conduct help us do that. Our policy aligns with the UN Guiding Principles on Business and Human Rights. It is underpinned by the International Bill of Human Rights and the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, including its core conventions. These include the rights of our workforce and those living in communities potentially affected by our activities.

To support our teams, we provide human rights training and other awareness-raising activities. In 2023 this included training on identifying and managing labour rights and modern slavery risks.

bp.com/humanrights

a The aggregate quantity, net to bp, of renewable generating capacity that has been developed to the point of final investment decision.
b A wage that meets employees' basic needs. Analysis excluded employees in recently acquired companies.
c In 2023 we reset our supplier diversity target from $1 billion to $650 million annual spend by 2025, see **page 71**.

★ See glossary on **page 373**

Caring for our planet

Our sustainability frame includes a focus on making a positive difference to the environment in which we operate.

These aims build on our environmental impact and risk management requirements, and guidance in our OMS.

For detailed information on our aims 16-20 and performance in 2023, see **bp.com/sustainability**

16

Our **aim 16** is making a positive impact through our actions to restore, maintain and enhance biodiversity where we work.

What we've achieved

- Funded two new biodiversity restoration projects – Zangilan Forest restoration in Azerbaijan and marine habitat restoration in the River Tees in the UK.
- Identified and implemented biodiversity enhancement activities in and around operations at Cherry Point refinery in the US, and in Azerbaijan-Georgia-Türkiye.

17

Our **aim 17** is becoming water positive by 2035.

What we've achieved

- Continued site-based water assessments to help operational efficiency, at Rotterdam, Cherry Point, Lingen and Whiting refineries.
- Signed up to support three catchment collaboration projects in Azerbaijan in 2023 as part of our aim to work with others to replenish water.

18

Our **aim 18** is championing nature-based solutions and enabling certified natural climate solutions.

What we've achieved

- Worked on finalizing our nature-based solutions (NbS) action plan, which focuses on ways of embedding nature into our engineering designs for new projects and existing operations.
- Continued to build our portfolio of natural carbon solutions voluntary carbon projects.

19

Our **aim 19** is to unlock new sources of value through circularity.

What we've achieved

- Included our circularity framework as guidance in our OMS and highlighted circularity as a focus area for operations to consider when planning new projects.
- Introduced circularity measures across our convenience business. For example, we are now offering reusable cups and bowls across Germany, through a deposit system called Recup and Rebowl.

20

Our **aim 20** is developing a more Sustainable Supply Chain.

What we've achieved

- Published bp procurement's new *Sustainable Purchasing Position* in November 2023.
- Updated '*bp's expectations of its suppliers*' to reflect both an update to our code of conduct in 2022 and the new sustainable purchasing position.

bp.com/sustainablepurchasing

Biodiversity

Our biodiversity position builds on the robust practices already in place to manage biodiversity across bp projects.

We have applied our net positive impact (NPI) biodiversity methodology on new in scope projects, including the Northern Endurance Partnership Development in the UK and the Ubidari Carbon Capture project in Indonesia. We are also building our capability and understanding of the methodology across our project teams to support delivery of our NPI objective. We have provided training, coaching and expert advice to help build the skills required.

bp.com/biodiversity

Our water consumption in 2023

We saw a 29% fall in freshwater withdrawals and a 15% fall in freshwater consumption, compared with our 2020 baseline[a]. This was largely due to the divestment of the Toledo refinery, however other changes were attributable to the reconfiguration of Kwinana, turnaround activity at Castellón and use of non-freshwater sources in bpx energy Eagle Ford. This was partially offset by increases in consumption at Cherry Point owing to the introduction of the new hydrocracker and cooling water infrastructure projects, and an increase in drilling and completions activity at our bpx energy La Ha operations.

At major operating sites, 73% of our total freshwater withdrawals and 36% of freshwater consumption were from regions with high or extremely high water stress in 2023. This is a significant increase from 2022 (0.1% and 0.6% respectively) and is due to an update to World Resource Institute's (WRI) Aqueduct™ 4.0 in 2023 which changed the distribution of water stressed areas. As a result three of our refineries are located in regions that are now considered to have higher water stress.

Air emissions

We monitor our air emissions – including SOx, NOx and non-methane hydrocarbons – and, where possible, put measures in place to reduce the potential impact of our operational activities on local communities and the environment. In 2023 our total air emissions remained relatively flat compared with 2022.

bpx energy contributed to these results by reducing its non-methane hydrocarbon emissions by 5% through various interventions including electrification, compressor optimization, base well tie-ins, new well designs and flaring reduction projects.

bp.com/ESGdata

a The baseline freshwater consumption is defined as 55.9 million m^3 per year.

Climate-related financial disclosures[a]

We support the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), which was established by the Financial Stability Board to improve the reporting of climate-related risks and opportunities.

Our aim 9 is to be a recognized industry leader in the transparency of reporting and we want to work constructively, where possible, with the TCFD, and others, to develop good practices and standards for transparency. In 2023 we continued to work with the World Business Council for Sustainable Development (WBCSD) in relation to their ongoing 'Climate Scenario Analysis Reference Approach for Companies in the Energy System'. Read about how we have used the WBCSD Scenario Catalogue[b] to inform our own scenario analysis on **page 66**.

TCFD statement

We report in line with the FCA Listing Rule LR 9.8.6(8)[c], which requires us to report on a 'comply or explain' basis against the TCFD Recommendations and Recommended Disclosures in respect of the financial year ended 31 December 2023[d].

We consider our climate-related financial disclosures to be consistent with all of the TCFD Recommendations and Recommended Disclosures and that they are therefore compliant with Listing Rule 9.8.6(8). We have set out our disclosures against each TCFD Recommended Disclosure and in doing so have covered both the Recommended Disclosure and the related Recommendation[e]. We have made disclosures that take into consideration references made to the materiality of information in the Recommendations related to Strategy and Metrics and Targets. In determining materiality for these purposes we considered whether particular information may have the potential to influence the economic decisions of our shareholders. We have also, where appropriate, considered the TCFD guidance and other supporting materials referred to in the Listing Rules[f]. In the Strategy (b) section below, we describe elements of our plans for the transition to a lower carbon economy as we execute our strategy.

As explained on **page 14**, we consider our strategy to be consistent with the goals of the Paris Agreement. The strategy has been developed taking into consideration, among other things, the *bp Energy Outlook 2023* scenarios (described on **page 10**), which take account of climate commitments and pledges made by countries in which we operate alongside a range of other factors.

In preparing our disclosures we have made several judgements, and while we are satisfied that they are consistent with the TCFD Recommendations, Recommended Disclosures and reporting requirements under the UK CFD Regulations, we will continue to evaluate our options for future disclosures. We will monitor guidance as it evolves and consider opportunities to enhance our disclosures.

Governance

TCFD Recommendation:

Disclose the organization's governance around climate-related issues and opportunities.

Recommended Disclosure:

a. Describe the board's oversight of climate-related risks and opportunities.

b. Describe management's role in assessing and managing climate-related risks and opportunities.

The role of the board is to promote the long-term sustainable success of the company, generating value for our shareholders while having regard to the interests of our other stakeholders and the impact of our operations on the communities where we operate and the environment.

In performing this role, the board sets and monitors bp's strategy. It is responsible for monitoring bp's management and operations and obtaining assurance about the delivery of its strategy.

Any changes to the company's purpose, strategy and values (which we call 'Who we are') are reserved for the board for approval in accordance with the board-approved corporate governance framework.

The board's responsibilities extend to oversight of bp's internal control and risk management framework, including climate-related risks and opportunities. These responsibilities are set out in the terms of reference of the board, available online at **bp.com/governance**.

The board considers that our strategy allows bp to be flexible to adapt to the evolution of the external environment, including market changes, to remain consistent with the Paris goals, see **page 33**.

The board and its committees have oversight of climate-related issues[g], which include climate-related risks and opportunities. Board and committee activities in respect of climate-related risks and opportunities are set out within the board activities section and committee reports respectively, which can be found on the pages detailed in the table on **page 56**.

Climate-related risks and opportunities were discussed at each board meeting covering strategy in 2023, and the committees considered climate-related issues where appropriate to do so in fulfilling their responsibilities. Oral reports from each of the committee chairs are given at board meetings to keep the board apprised of the relevant matters discussed including, where applicable, climate-related risks and opportunities.

The board also reviewed documents containing climate-related disclosures.

a This section provides disclosures pursuant to the FCA Listing Rule LR 9.8.6(8) and in line with the Companies (Strategic Report) (Climate-related Financial Disclosure) Regulations 2022 (The UK CFD Regulations). In the main, we consider our TCFD disclosures achieve UK CFD compliance. Where additional information has been provided beyond our TCFD disclosures to achieve compliance with the CFD Regulations, this has been specifically called out.
b Our 2023 analysis used data from the WBCSD Climate Scenario Catalogue version 2.0, published on 31-03-2023 and downloaded on 01-02-2024.
c https://www.handbook.fca.org.uk/instrument/2020/FCA_2020_75.pdf.
d In considering the consistency of our disclosures with the TCFD Recommendations and Recommended Disclosures we have had regard to, among other things, the documents referred to in LR 9.8.6B and 6C, as applicable to the financial year 2023.
e In preparing the disclosures we have referred to the TCFD implementation guidance 'Annex: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures (October 2021)', available from fsb-tcfd.org/publication.
f LR 9.8.6B and LR 9.8.6C.
g We interpret the term 'climate-related issues' to relate primarily to those climate-related risks and opportunities for bp which are relevant to the delivery of long-term shareholder value in the context of the low carbon transition.

The board continues to develop its knowledge and expertise on climate-related and sustainability matters. For example, in 2023, the board took part in the following:

Renewables and power transition growth★ engine update	Included recent progress on and plans for offshore wind. Held to assist the board in remaining abreast of key energy transition risks and opportunities.
Hydrogen transition growth engine update	Held to assist the board in remaining abreast of key energy transition risks and opportunities.
Energy and economic update	The briefing was given by our chief economist on developments shaping the key political and societal trends currently affecting the energy transition, following publication of the *bp Energy Outlook 2023* in January 2023. Given to assist the board in remaining abreast of key developments fundamental to implementation of bp's strategy and net zero ambition and aims.

The board is due to receive further updates on bp's transition growth engines and climate and sustainability in 2024.

Our company secretary's office manages the process by which board and committee agendas are set and works closely with teams in bp to develop materials that assist the board to discharge its responsibilities, including in respect of climate-related issues.

The board believes its members possess the necessary expertise related to climate change and sustainability to support the group's strategy. In particular, six of our non-executive directors have specific climate change and sustainability expertise, as set out here.

This determination is based on an assessment of their background and experience, with focus on their background in the energy sector, experience in executive roles and depth of experience in sustainability and climate change, including climate-related risks and opportunities.

For more general director skills information, see **page 96**, for director's biographies see **pages 83-85** and **bp.com/board**

- **Dame Amanda Blanc** is the current serving CEO at Aviva plc and has held several executive roles across the industry. She is co-chair of the UK Transition Taskforce and Principal Member of Glasgow Financial Alliance for Net Zero (GFANZ).
- **Helge Lund** has extensive experience in the energy sector and deep knowledge and global experience including stakeholder considerations regarding climate change risk and opportunities. He has chaired the board through the development of bp's strategy and net zero ambition and continues to have oversight of the delivery of that strategy. He served as a member of the UN Secretary-General's Advisory Group on Sustainable Energy from 2011 to 2014.
- **Hina Nagarajan** has over 30 years' experience in senior roles within the customer-focused FMCG sector, which is invaluable in support of bp's convenience transition growth engine. As CEO of United Spirits Limited (Diageo plc's listed Indian subsidiary), she has overseen the implementation of Diageo India's 10-year ESG action plan, and its Society 2030 mission, in addition to a number of other sustainability initiatives.
- **Johannes Teyssen** brings CEO experience from his time at EoN, where under his leadership, it split its hydrocarbons and non-hydrocarbons businesses – giving him significant experience of considering climate-related risks and opportunities. He has sat on bp's safety and sustainability committee since 2021. He is a director of Alpiq Holding AG, a Swiss energy services provider and electricity producer in Europe.
- **Melody Meyer** has deep-rooted operational experience in the energy sector which equips her to advise on climate-related risks and opportunities. She has chaired bp's safety and sustainability committee since November 2019, which oversees the implementation of bp's sustainability framework and net zero ambition.
- **Satish Pai** has extensive experience in the resource and energies industries. He is managing director of metals company, Hindalco Industries Limited, and leads the company's Sustainability Board in overseeing sustainability initiatives – such as sustainable mining practices, energy conservation and recycling. He has served on the bp safety and sustainability committee since March 2023.

Board and committees' consideration of climate-related issues

For examples from the year ended 31 December 2023, see the text indicated with a T on the pages set out below.

The board

pages 90-91

People and governance committee

page 94

Audit committee

page 98

Safety and sustainability committee

page 103

Remuneration committee

page 105

The role of management

The board, subject to certain conditions and limitations, delegates day-to-day management of the business of the company to the CEO. The CEO is responsible for proposing bp's strategy to the board for approval and leading the bp leadership team in delivering bp's strategy and annual plan.

Under this delegation, the CEO is responsible for overseeing the implementation of a comprehensive system of internal controls that are designed to, among other things (a) identify and manage risks that are material to bp, (b) protect bp's assets, and (c) monitor the application of bp's resources in a manner that meets external regulatory standards. Risks, for these purposes, include the climate-related risks and opportunities for bp associated with the issue of climate change and the transition to a lower carbon economy. This is set out in the CEO role profile at **bp.com/board**.

The assessment and management of climate-related risks and opportunities is embedded across bp at various levels and delegated authority flows down from the board through the CEO. See **page 73** for more information on risk governance and oversight.

2023 activity

Where considered appropriate, climate-related risks and opportunities were discussed at bp leadership team meetings in 2023 as part of regular business performance updates produced for these meetings.

The bp leadership team provides oversight of risk, including climate-related risk, through the various committees described on **page 73**. The leadership team is informed about and monitors emerging risks via the 'emerging risk' paper, produced by our SVP treasury, which focuses primarily on short- to medium-term emerging risk. Members of the leadership team receive information on the longer-term risks and opportunities associated with the energy transition via updates produced by our chief economist. These papers are shared with the board.

SVP level and beyond

The bp leadership team is supported by bp's senior-level leadership and their respective teams, with dedicated business and functional expertise focused on climate-related risks and opportunities or on matters which may be affected by such risks and opportunities. This includes: health, safety, environment and carbon; risk; strategy and sustainability (which includes our carbon ambition, policy and economics teams). Alignment between group, business and functional leaders is fostered through other meetings, for example, the Strategy and Sustainability Management Forum in C&P or the TCFD working group which leads the preparation of bp's TCFD disclosures.

Management consideration of climate-related risks and opportunities is organized as follows:

Resource commitment meeting	Forum for approval of investments related to existing and new lines of business above $250 million or $25 million for acquisitions, or which exceed the relevant EVP financial authority, and any project considered strategically important such as a new market entry, see **page 31**.
Group sustainability committee	Provides oversight, challenge and support in the implementation of bp's sustainability frame and the management of potentially significant non-operational sustainability (including climate-related) risks and opportunities. It met four times in 2023. During 2023 the committee considered progress embedding sustainability, performance against targets and bp's position on certain strategic sustainability issues that present risks or opportunities to delivery. This committee is chaired by the EVP strategy, sustainability & ventures (SS&V) and comprises members of the bp leadership team. The outputs from the committee are shared with the board and its committees, including the safety and sustainability committee, as appropriate.
Group operational risk committee	Provides oversight of safety and operational risk management performance for the group, where appropriate. Climate-related factors may affect certain sources of safety and operational risk, such as severe weather events.
Group financial risk committee	Monitors the effectiveness of bp's financial reporting, systems of internal control and financial risk management, namely material group financial risks. In 2023, in relation to climate-related risks and opportunities, it considered the proposed TCFD strategy disclosures and planned approach to assurance and verification of non-financial reporting (including climate-related reporting) ahead of discussion with the audit committee.

Acquired businesses

Integration plans are developed to transition acquired businesses into bp's system of internal control, over an appropriate timeframe.

Climate governance: management of climate-related matters

As at 1 January 2024

bp board level

Board	Safety and sustainability committee	Audit committee	Remuneration committee	People and governance committee

EVP level

CEO **bp leadership team**	**Group sustainability committee** Chair: EVP SS&V Oversight of sustainability matters.	**Resource commitment meeting** Chair: CEO Attended by CFO, EVP SS&V, EVP I&E. Observed by EVP legal and SVP internal audit.	**Group operational risk committee** Chair: CEO Oversight of the group's safety and operational risk management performance, safety agenda and priorities.	**Group financial risk committee** Chair: CFO Oversight of finance, treasury, trading and cyber risks.

SVP level

Sustainability forum Chair: SVP sustainability Focused on sustainability plans and progress.	**Production & operations carbon table** Chair: SVP HSE & carbon, P&O Focuses on the delivery of lower carbon plans in P&O – particularly in relation to net zero aims 1 and 4.	**Issues and advocacy meeting** Chair: SVP external affairs, C&EA Policy and advocacy issues, including those related to climate matters.

Cross bp forums and meetings

Meetings and forums to allow cross-group discussions, integration and implementation.

Risk Management

TCFD Recommendation:

Disclose how the organization identifies, assesses and manages climate-related risks.

Recommended Disclosure:

a. Describe the organization's processes for identifying and assessing climate-related risks.

bp's risk management system and policy, described on **page 73**, are designed to address all types of risks including our principal risks and uncertainties described on **page 74**.

As part of this system, our businesses, integrators and enablers are responsible for identifying, assessing, managing and monitoring risks associated with their business or functional area.

The process for identifying risks is outlined on **page 74** and guidance to support consistency has been made available to our businesses, integrators and enablers to provide them with a climate-related framework and taxonomy, which they are able to use as they see fit in their identification and assessment of risk.

Where risks – including climate-related risks – are identified, businesses, integrators and enablers are required to assess them, in line with our risk management policy. This includes an impact and likelihood assessment which supports the consideration of relative significance and prioritization of risk management activities.

The impact criteria outlined on **page 74** include health and safety, environmental, financial and non-financial (such as regulatory impact) criteria and are used for assessing risks, including climate-related risks. This provides a consistent basis for assessment across bp.

For the purposes of our TCFD disclosures, we continue to make use of the TCFD's distinction between 'physical' and 'transition' climate-related risks.

Identification, assessment and management of climate-related opportunities[a]

As set out in our TCFD Strategy A and B disclosures on **page 60**, we have identified potentially material climate-related opportunities and our strategy to transition to an integrated energy company has been informed by these. We identify climate-related opportunities by considering a range of information sources, including the *bp Energy Outlook* (see **page 10**), which helps to inform our core beliefs about the energy transition. Business opportunities are originated across bp, and taken forward through bp's investment governance framework, see **page 31**.

Our gas & low carbon energy business is accountable for the delivery of many of our low carbon opportunities through both organic and inorganic growth (see **page 74**). Our investment governance framework (see **page 31**) provides the mechanism by which alignment of these opportunities with our strategy is assessed and decisions on which to progress are made.

a Information added to satisfy the UK CFD Regulations.

Recommended Disclosure:

b. Describe the organization's processes for managing climate-related risks.

c. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall Risk Management.

Risk Management process

Risks which may be identified include potential effects on operations at asset level, performance at business level and developments at regional level from extreme weather or the transition to a lower carbon economy.

As part of our annual process the bp leadership team and board review the group's principal risks and uncertainties. Climate change and the transition to a lower carbon economy continues to be identified as a principal risk, see **page 75**. It covers various aspects of how risks associated with the energy transition could manifest. Physical risks such as extreme weather, which may be affected or intensified by climate change, are covered in our principal risks related to safety and operations.

Physical risk

Physical risks are typically identified at the asset or project level and are managed depending on the level of risk assessed.

In the North Sea and Gulf of Mexico, regions more prone to severe weather conditions, our offshore facilities monitor meteorological and oceanographic conditions through the collection of measurements. This data is collated and periodically compared against the 'Basis of Design' for the facility. If significant differences are observed, then this may trigger an update to the 'Basis of Design', prompting action to reassess risks such as structural integrity and station-keeping and if necessary, implement additional risk mitigations, for example updating procedures for shutting down and removing personnel from facilities ahead of severe weather events. Updates may also be made as a result of other new knowledge, analysis methods and data, including climate projections where appropriate.

Our major projects are required to assess the potential impact of severe weather and projected climate-related physical impacts. Where relevant, potential changes in environmental conditions, such as sea level rise and ambient temperatures, over the expected lifetime of a project are to be considered as part of the design process.

Building on a modelling exercise conducted in 2022, in 2023 we implemented a screening approach to support identification of potential severe weather and physical climate-related hazards at operational sites. Screening was conducted for a number of onshore sites and, where potential hazards have been identified, and as appropriate, this enables further work to be carried out to assess potential risks and implement appropriate management measures.

For other assets, such as our retail sites★, that are typically not exposed to a comparable level of severe weather risk, climate-related risks such as flooding or wind damage may be managed where appropriate through the emergency response plans and business continuity plans which are mandated through company-wide policies.

Additionally, at a group level we recognize risk associated with the potential for increased water scarcity due to climate change and other factors and the impact this could have on our operations and in the catchments where we operate. In order to understand the water-related challenges that we face, we review our water impacts, risks and opportunities at our major operating sites. These reviews consider the quantity and quality of water used as well as any regulatory requirements. Over time, we anticipate site-level activities in support of our aim 17 contributing to our management of water-related risks and opportunities. Under aim 17, we aim to replenish more fresh water than we consume in our operations by being more efficient in operational freshwater use and effluent management. And, by collaborating with others to replenish fresh water in stressed and scarce catchment areas where we operate.

Transition risk

The board appraises bp's strategy and monitors bp's management and operations to obtain assurance over the delivery of its strategy. This approach enables the effective management of climate-related transition risks and opportunities facing bp associated with the energy transition. For the purposes of our TCFD disclosures, we have grouped transition risks identified by our businesses, integrators and enablers, into the three broad material climate-related transition risks to bp, see **page 61**. However, we continue to assess and manage the component parts of those broad transition risks, including:

Policy and legal risks

Our policy and partnerships team monitors and develops policy positions in line with bp's sustainability aims. This team works with our regional organization as well as corporate entities to discuss regional and global policy trends and support external positioning and interactions relating to policy and advocacy topics.

Our group sustainability committee provides oversight of sustainability matters and our issues and advocacy meeting covers emerging advocacy issues.

Our legal team manages bp's litigation, including climate-related litigation and advises on the management of associated risks. This includes the use of internal lawyers and, where appropriate, external counsel.

Market risks

In developing our business strategies, we consider market risks, controls and mitigations, including future demand in the different geographies in which we might operate, the competitive landscape and the potential value proposition. We manage these risks through our investment decisions, our hedging and optimization activity, and through key business processes, including the group investment assurance and approval process.

Reputational risks

Our investor relations and communications & external affairs (C&EA) teams work to mitigate reputation-related risks, which include the risk of shareholder action. Our investor relations team co-ordinates engagement with key investors on both a bilateral basis and through investor initiatives to support understanding of bp's strategy and gain insights to inform feedback they provide to the group.

Our C&EA team manages corporate reputation through identification and monitoring of key issues and both proactive and reactive engagement with relevant stakeholder groups to communicate bp's positions. Under our aim 6, which is to actively advocate for policies that promote net zero, the team also leads advocacy campaigns for policies that support net zero, see **page 50**.

Technology risks

Our technology team works to both mitigate risks and identify opportunities associated with evolving and emerging technologies that play a role in the changing global energy system. The team generates technology assessments and disruptive technology reports for review by bp senior executives and the recommendations are overseen by the bp leadership team, through the Innovation Advisory Council. In appropriate cases this helps to underpin and appraise the business case for new investments, new partnerships, new customer offers or new business models where these are being driven by technology innovation.

★ See glossary on **page 373**

Climate-related financial disclosures continued

Strategy

TCFD Recommendation:

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy and financial planning where such information is material.

Recommended Disclosure:

a. Describe the climate-related risk and opportunities that the organization has identified over the short, medium, and long term.

In setting and monitoring delivery of bp's strategy, the board and leadership team consider climate-related risks and opportunities across the:

- **Short term** (to 2025): aligning with our near-term business and financial planning timeframe.
- **Medium term** (to 2030): aligning with our group business outlook timeframe, and enabling us to think beyond our short-term targets and adjust course if appropriate.
- **Long term** (to 2050): using scenarios to help explore the wide range of uncertainties surrounding the energy transition over the next 30 years. For more detail on our approach, see **page 11**.

TCFD categorizes climate-related transition risk and opportunity as follows: policy and legal, market, reputation and technology. It also refers to climate-related acute and chronic physical risks and opportunities. Risks in each of these categories have been identified using a risk management process that our businesses, integrators and enablers are required to follow. For more about how the relative significance of identified risks is evaluated, see Risk Management on **page 58**.

Climate-related transition risks and opportunities

At a group level, we have identified three broad, material climate-related transition risks, underpinned by underlying risks that are assessed and managed through the risk process outlined overleaf on **page 61**. These transition risks may cut across our short-, medium- and long-term time horizons; however, we indicate below wherever there is a particular time horizon in which the risk has been considered. The transition risks are also global in nature, so we do not discuss specific geographies here, but the underlying risks refer to specific geographies where appropriate[a]. We also see significant potential for upside – or opportunity – associated with some of these risks. These are discussed under each risk on **page 61** and in relation to Recommended Disclosure (b) we also describe the potential impacts of both the risks and opportunities to bp.

Climate-related physical risks

The physical risks we have identified primarily relate to severe weather and often represent potential for increased drivers for safety and operational risks to our operations, particularly process safety, personal safety, and environmental risks, see Risk factors **page 77**. In addition, we have identified the potential for changes in the availability of freshwater, including as a result of climate change, as a risk to some of our operations. Higher instances of extreme weather also have the potential to impact supply chains and critical infrastructure, such as air and sea ports, as well as our customers.

We recognize that we could also face other forms of physical climate-related risk over the longer term, for example associated with changes in sea level rise, extreme temperatures and flooding, which could impact our operations. As these risks are primarily operational, and location-specific, they are not grouped in the same way as transition risks.

Offshore facilities

In the case of our offshore facilities, climate change could create greater uncertainty around frequency and/or intensity of severe weather events, such as extreme waves, loop currents, and storms, particularly in the medium to long term. These factors could affect the future risk profile of an asset over its lifetime, and could also impact production or costs.

Water resources

Water resources are increasingly under pressure from various factors, including climate change, and this poses a potential risk to some of our operations that depend on the availability of freshwater. Based on analysis using the World Resources Institute (WRI) Aqueduct Global Water Risk Atlas, eight of our 17 major operating sites in 2023 were located in regions with medium to extremely high water stress. We have identified the potential for this risk to increase in the medium term. For more on water consumption, see **page 54**.

In common with other businesses around the world, in the longer term we could face adverse market or value chain conditions associated with large-scale cumulative impacts of physical climate change if global mitigation and adaptation efforts are insufficient or unsuccessful. We support the goals of the Paris Agreement and believe that the best mitigation against these types of physical risk is to seek to contribute along with others to the success of global climate mitigation efforts. Our strategy seeks to position us to make such a positive contribution.

We do not currently foresee any material opportunities arising from changes in the physical environment as a result of climate change. However, the actions we are taking to make our operations more resilient, for example through improving efficiency of our freshwater use, may also bring about benefits such as reduced costs.

Recommended Disclosure:

b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

bp's plans for the energy transition

We describe below how we believe our strategy and net zero ambition are both good for business and support society's drive towards the Paris goals.

In this section we talk about some of our plans for the transition and where we do so we have identified these with TP.[b]

Throughout the strategic report we set out bp's strategy and plans for the energy transition. This includes our progress against our strategic pillars and transition growth engines, see **pages 18-23**.

Our progress against our net zero aims and the actions we are taking to help the world get to net zero are described on **pages 48-50**.

TP Our strategy is to transition to be an integrated energy company, focused on delivering solutions for customers. This strategy, together with our net zero ambition and aims (see **page 48**), has been informed by various inputs, including the climate-related risks and opportunities associated with the energy transition described above; the same is true of our financial and business processes. We describe how we use scenarios to inform our strategy on **page 11**.

a Underlying risks are specific, for example, local or business-specific risks identified by specific bp entities through the risk processes described above under Risk Management.
b This is not intended to be an exhaustive list of our plans for the transition, but rather illustrative of some of the core elements of our plans.

Climate-related transition risks and opportunities

#1 The value of our hydrocarbon business could be impacted by climate change and the energy transition.	**Changes in policy, legislation, consumer preferences or markets as a result of growing concerns about climate change and the energy transition could reduce demand for fossil fuels or lower their price relative to our financial planning assumptions, particularly in the medium to long term, negatively impacting returns from or the value of our hydrocarbon businesses. Changes in regulations, including carbon pricing and fossil fuel policies, could also impact compliance and operating costs in our oil and natural gas production and refining businesses.** Alternatively, demand and/or prices for oil and natural gas and refined products during the next decade could be higher than our financial planning assumptions under certain transition pathways, including those aligned with the Paris agreement. This could strengthen returns from our hydrocarbon businesses (including securing higher proceeds from assets we choose to divest) which may enable us to deliver enhanced shareholder value, further strengthen our balance sheet and grow investment in the transition, in line with our financial frame.
#2 Our ability to grow or deliver expected returns from our transition growth engines could be impacted by the energy transition.	**Several factors could restrict the growth of our transition engines or returns from them. These factors include: lack of, or insufficient development and application of, policies, regulations and frameworks that support low carbon businesses; insufficient consumer demand for our low carbon offering; strong competition in the market; or the insufficiently rapid development of supporting technologies and infrastructure or constraints on supply chains for low carbon energies. This could particularly impact bp in the short to medium term as we seek to grow our low carbon businesses but could also represent a longer-term risk.** Alternatively, demand, policy support or enabling technology and supply chain growth for renewables could support a more rapid portfolio shift with expansion of our low carbon businesses and higher returns from them. Some low carbon businesses, including renewable power, bioenergy and emerging technologies such as hydrogen and carbon capture and storage (CCS), rely on policy support to promote growth. Our aim 6 is to advocate more actively for policies that support net zero, including carbon pricing (see **page 50**). Changes in customer preferences, pace of technology and infrastructure development and costs could impact the markets for low carbon products and services. For example, the pace of adoption of electric vehicles (EV) could impact utilization rates, and consequently returns, from our EV charging networks. We recognize that the pace of our transition relative to our core low carbon target sectors and regions is important. If we move more slowly than those markets, we may miss investment opportunities and customers may prefer different suppliers with potential negative consequences to demand for our products and to our reputation. If we move faster than these markets, we risk investing in technologies or low carbon products that are unsuccessful because there is insufficient demand for them. However, our investment may also help to stimulate demand and provide us with a leading position in growth markets.
#3 Our ability to implement our strategy could be impacted by changing stakeholder attitudes towards the energy sector, climate change and the energy transition.	**Negative perceptions of the energy sector, or bp, could have a number of consequences, for example: adverse litigation; reputational impacts, including our ability to attract and retain talent; and shareholder action. These consequences could affect us in the short, medium or long term.** Alternatively, increased support from our stakeholders could enable access to additional capital and new investors, strengthening our ability to deliver our strategy and enabling faster growth of our low carbon businesses. The *bp Energy Outlook 2023* (see **page 10**) suggests that the increased attention on energy security is likely to accelerate the energy transition. Together with the strategic progress we are making, this gives us growing confidence in the opportunities of the energy transition. Perceived inconsistencies between the pace of bp's transition and societal expectations could have reputational and commercial impacts that might impair our ability to deliver our strategy. However, we also see potential to positively differentiate bp, by delivering against our strategy, ambition and aims.

Our ambition is to be a net zero company by 2050 or sooner, and to help the world get to net zero.

Resilient hydrocarbons: recognizing the uncertainty that the energy transition presents to our hydrocarbons★ business, our focus for that area of our business remains on high-grading our portfolio while maximizing returns and cash flow and working to reduce operational emissions.

This focus is underpinned by a resource base that allows us to choose the best investments and the optionality to allocate capital through the transition; we also plan to divest around 200,000 barrels of oil equivalent per day of lower margin assets by 2030. We have made strong progress on improving operational reliability and commerciality across our portfolio over the past few years, which we expect to help enhance the resilience of those assets through the transition.

We expect our 2030 production to be around 2mmboe/d after divestments.

To enable resilience to lower oil and gas prices which could result from the transition, as well as to deliver value, we intend to maintain the disciplined application of our balanced investment criteria, which include the consideration of hurdle rates of 15-20% from a balanced portfolio across oil and gas. We also intend to drive capital productivity through strong execution capability and sustain cost efficiency and reliability improvements. See more about our investment process on **page 30**.

We are aiming for the Scope 1 and 2 emissions from our operations – the majority of which are associated with the operating assets in our hydrocarbons portfolio (refining and upstream oil and gas combined) – to be 50% lower in 2030 than in 2019, and the Scope 3 emissions associated with our upstream oil and gas production to be 20-30% lower in 2030 than in 2019, see **page 48**.

★ See glossary on **page 373**

We see cash flow from our oil and gas businesses as helping to fund our investment into transition growth engines, while delivering shareholder value and helping maintain a strong balance sheet.

The climate-related transition risks we have identified may also impact demand for certain refined products in the future, potentially leading to lower refinery margins and requiring less efficient refineries to be retired. Consequently, we are continuing to drive greater competitiveness and value from our refineries, targeting around 96% Solomon refining availability★ by 2025 and to maintain Solomon first quartile net cash margins.

Our refineries are also a foundation for both our bioenergy and hydrogen transition growth engines. In biofuels, we plan to grow production to around 100,000 barrels per day by 2030 (of which ~20,000 barrels would be from co-processing at our refineries). In hydrogen, our existing refining demand is intended to be an anchor to build scale. As a result, we expect throughput to be sustained around current levels while the average carbon intensity of our refined products declines.

Taking account of some of the climate-related transition opportunities we have identified, we also aim to increase biogas supply volumes★, leveraging our position as the largest US biogas supplier to the road transportation sector and expanding our presence in Europe and internationally.

TP **Convenience and mobility:** given the opportunities in low carbon mobility that the energy transition offers, we are growing our EV charging network and seek to be a partner of choice for our customers as they navigate the energy transition. We are also expanding our *Castrol* business into the EV and industrial coolant sectors, and aiming to be a sector leader in sustainable aviation fuel (SAF) as the aviation industry transitions.

We recognize the risk of a decline in demand for conventional vehicle fuels and products due to the energy transition and we are working to increase the efficiency and resiliency of our existing fuels and lubricants businesses through operating cost reductions and margin optimization.

Our convenience (non-fuels) business is a sizeable and growing part of our mobility ecosystem underpinned by global growth in the convenience and food on-the-go sector.

Forecourt convenience is expected to grow in general, even in markets where we see faster fuels declines, helping us to retain and redevelop our retail sites through the energy transition as we deploy new energy sources.

Our acquisition of TravelCenters of America in 2023 enables us to respond to demand growth signals and further expand our low carbon fuels offer and our non-fuel offer in the US. We will increase the resilience of our existing fuels network by growing our presence on major transit routes and with fleet customers.

Our integrated business model across biofuels, hydrogen, liquefied natural gas (LNG) and electricity also helps to provide security of supply and to safeguard margins in a potentially supply-constrained faster transition or during periods of high market volatility. However, the speed of the energy transition may impact the pace at which the EV, SAF, biofuels, hydrogen and LNG sectors develop, which could impact revenue from these opportunities.

TP **Low carbon energy:** we recognize the opportunity to scale up our low carbon energy businesses over the next decade underpinned by growing demand and regulatory support.

In hydrogen, our ambition remains to become a global leader. We aim to leverage bp's existing refinery demand and growing biofuels ambitions to build regional supply positions, providing low carbon hydrogen and hydrogen derivative solutions to our customers in line with the development of the hydrogen sector. We aim to selectively pursue opportunities to grow our low carbon hydrogen production where there is regulatory support and CCS access (blue hydrogen★) or significant sustained cost benefit (green hydrogen★).

To mitigate uncertainties in the future pace of transition, our hydrogen opportunities are preferentially focused on advantaged locations, while our global hopper offers ongoing investment flexibility.

In renewable power, we are focusing our investments in opportunities where we can create integration value and enhanced returns, participating in service of green hydrogen, and e-fuels, EV charging and power trading (including flexible generation). We are building a global position in offshore wind, enabled by our capability in large-scale, complex offshore projects, and continue to progress a solar development and sell model with Lightsource bp. Within this, we aim to deliver, and largely operate, around 10GW net installed capacity in offshore wind, solar and onshore wind by 2030.

As the energy transition drives increasing electrification of the global energy system, our power trading business, which trades renewable and non-renewable electricity, allows us to optimize across the power value chain, from generation, including renewables and flexible generation, across grid markets, to customers. This becomes a differentiating factor in unlocking the full potential value of renewables for bp and helps position us for further electrification of the energy system as well as for further decarbonization of electricity. It may also increasingly help optimize across other value chains like green hydrogen and advanced mobility, that may be dependent on power as an anchor commodity.

We retain the ability to flex capital between our transition growth engines to optimize returns, recognizing the potential for the transition to occur faster or slower than anticipated and on different pathways. To help maintain resilience to the possibility of a slower transition, we also continue to consider whether the necessary regulatory support is in place and seek to secure a customer-backed route to market for a reasonable share of energy produced by our renewable power and hydrogen projects prior to final investment.

Impact on technology

We are investing in digital and technology solutions that can help to generate value for bp, manage risk and help accelerate the transition through focused scale-up and innovation. Over time, we expect our research and development spend to be increasingly focused on technologies with the potential to reduce carbon emissions and enable our new low carbon businesses. See **page 46** for examples of technology investments in 2023.

We recognize the potential for disruptive technologies to impact our strategy. Alongside our research and development investments, our bp ventures portfolio also includes investments in emerging technologies and business models that may help enable the transition to a low carbon economy.

Physical risk

The potential impacts of the types of physical risks we have identified could include reduced production, throughput or sales – for example as a result of damage to facilities or supply chain disruption – or in a most extreme case loss of life or an asset. Due to uncertainties associated with the impact of climate change on severe weather events in the future, it is difficult to quantify the potential impacts associated with any increase in these risks as a result of climate change.

Having considered both geographic factors and the ability of climate models to adequately represent future trends in physical climate parameters, we seek to take the uncertainties concerning climate-related physical risk into account in our approach to design and operating criteria for existing assets and new major projects★. Where appropriate, we have updated our metocean design criteria to include consideration of both forward-looking and historic models, including climate and synthetic models, in an attempt to mitigate both models and extrapolation uncertainty. The particular models chosen will depend in part on geographic location. See Risk Management, **page 58**, for how we manage these uncertainties.

As a step in seeking to improve the resilience of our operations to the physical changes that might result from climate change that we have described above, we have undertaken screening of present-day and future potential physical risk exposure for selected key assets and identified those sites with potential for heightened exposure to physical risks in order to prioritize these for further site-based assessment.

As part of this prioritized approach, in 2023 we completed a detailed site-based study at our Castellón refinery in Spain, which found that the weather hazard contributing the most to risks at site is intense summer storms. Taking account of the results of the study, the Castellón integrity management team are assessing new risk barriers to support mitigation of potential risks.

Recognizing the potential impact of climate change on water resources, as part of our aim 17 to become water positive by 2035, we are taking steps to be more efficient in operational freshwater use and effluent management (see **page 54**).

Impacts on our financial planning

Capital allocation: We plan to invest sufficient capital to execute our strategy, enabling us to mitigate the risks and capture the opportunities we have identified. As part of our annual planning processes, we assess the distribution of capital across our business areas, including consideration of market evolution. In February 2024 we announced that we expect capital expenditure to be around $16 billion in 2024 and 2025; and in a range of $14-18 billion through to 2030. We expect the proportion of that investment directed annually towards our five transition growth engines to have grown by 2030 compared to 2024. To help maintain resilience to the pace of transition and access opportunities, we will continue to flex capital as policies, technologies and markets evolve.

Access to capital: While there is potential for concerns about the energy transition to impact banks' or debt investors' appetite to finance hydrocarbon activity, we do not anticipate any material change to funding in the short to medium term, and our financial frame includes working to maintain a strong investment grade credit rating, targeting further progress on credit metrics within the 'A' range. In 2022 we reduced our net debt by over $9 billion and by a further $0.5 billion in 2023. Since the end of 2019 we have repurchased around $24 billion of short-dated existing bonds and issued over $12 billion of new bonds with a duration of 20 years or longer, more than doubling the duration of our debt book to over 10 years. Additionally, we have continued to have good access to the commercial paper markets. Subject to maintaining a strong investment grade credit rating, we intend to allocate around 20% of surplus cash flow★ in 2024 to further strengthen the balance sheet. We provide more detail on financial risk factors, including liquidity risk in Financial statements – Note 29.

Investment criteria: Investments are evaluated against a balanced set of investment criteria; the economic criteria utilize a set of price assumptions that reflect our view of market evolution (for our key investment appraisal price assumptions see **page 30**). In addition, the investment economics for all investment cases where annual greenhouse gas (GHG) emissions from operations are anticipated to exceed specific thresholds include a carbon price for those emissions, that rises to $100/teCO_2e$ (2021 $ real) in 2030.

When taking investment decisions we continue to consider six balanced investment criteria – including sustainability (see **page 32**).

Impacts on financial performance and position

Assessing the impact of climate change and the energy transition requires the use of a number of judgements and estimates. We have set out the significant accounting policies, judgements and estimates used in assessing the impact of climate change in Financial statements – Note 1.

This includes information on pricing, useful economic lives, timing of implementation of policies or decommissioning provisions, and assumptions related to how each might change over time and how such assumptions may impact our currently reported assets and liabilities.

Our price assumptions, including those set out on **page 30**, reflect a range of future possible scenarios and take account of the potential impact of climate-related risks and opportunities as well as current economic and geopolitical factors. Consequently, impairment losses and impairment reversals consider inputs that arise from climate change and the energy transition. It is not possible to quantify separately the impact of these different inputs on our impairments. However, in conducting our impairment sensitivity tests, that in part reflect transition downside risk, we consider prices within the range covered by the 1.5°C scenario family within the WBCSD data sets used for TCFD resilience testing below.

Financial statements – Note 1 provides information on impairment assumptions and sensitivities. Note 4 provides information on gains and losses on disposal or closure of business and operations, and impairments and impairment reversals, and Note 8 provides information on impairment losses relating to exploration for and evaluation of oil and natural gas resources. See Financial statements – Note 1, Note 4 and Note 8 for more information.

Recommended Disclosure:

c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Our strategy is designed to be resilient to a range of climate-related scenarios, including those consistent with well-below 2°C and 1.5°C outcomes, see **pages 14-15**.

As in 2022, to help test our view of this, we have assessed the resilience of our strategy to different climate-related scenarios, including 1.5°C consistent scenarios. We did this in three steps:

1. First, we evaluated all business areas in our portfolio by i) quantitatively assessing their financial significance, in the context of bp's total financial frame, to understand the potential scale of financial/strategic impact that could be put at risk if exposed to transition uncertainty, including 1.5°C; and ii) considered whether there is a key variable – such as price, margin or demand – which would represent a principal transition driver of such risk.

★ See glossary on **page 373**

2. Second, we quantitatively assessed the impact, to each business area, of potential transition exposure scenarios in 2030 – the point in our planning horizon at which there is widest transition uncertainty.
   - For each of those business areas with both sufficient scale and for which a specific transition risk driver was identified – which collectively represent over 80% of our 2030 adjusted EBITDA★ outlook – we performed a scenario analysis focused on that transition risk driver, across a range of transition pathways[a], including 1.5°C, as set out below and in our methodology summary on **page 66**.
   - For each of the remaining business areas we performed a simplified quantitative scenario analysis, by testing the financial impact of 'a scenario in which each business area's expected 2030 adjusted EBITDA is assumed to be reduced to zero – an outcome at least as detrimental to that business area's adjusted EBITDA as could reasonably be expected to result from business-as-usual (BAU), well-below-2°C and 1.5°C transition pathways'.

   In this way, all business areas were quantitatively tested at, or beyond, a range of transition scenarios.
3. Finally, on the basis of the results of steps 1 and 2, we identified those business areas for which the possible consequences of the downside scenario(s) were sufficiently significant to potentially jeopardize group strategic resilience – the only business areas for which this was found to be the case were oil and gas production with respect to their exposure to oil price. For these business areas we assessed the potential implications for bp's strategic resilience (as defined below) over the full period from 2025 to 2030.

To undertake steps 2 and 3, we identified financial criteria which can be modelled as proxies for strategic resilience – choosing to do this through three lenses: our ability to continue to (i) deliver a resilient dividend to shareholders, (ii) maintain a strong investment grade credit rating, and (iii) make disciplined investment allocations within our capital frame. These are consistent with our assessment in 2022.

This is not intended to represent a 'definition' of resilience beyond the purposes of this exercise, and a core assumption of this analysis is necessarily that, aside from any implications of the scenarios being tested, including potential controllable mitigations such as capital or cost management that we might naturally expect to take in response, bp will deliver the assumed underlying strategic and financial priorities out to 2030.

Our approach, described in more detail in box 'Our approach to testing resilience to transition risk' on **page 66**, is directly applicable to transition risks #1 and #2 – as well as their associated opportunities – as these lend themselves to a financially quantified scenario-based analysis. The approach does not directly address transition risk #3 – however, we believe that some of the potential drivers for transition risk #3, namely policy and societal trends, may be implicit in these scenarios, and we believe that the successful execution of our strategy will, over time, help to mitigate this risk to bp as well as positioning us to take advantage of the potential associated opportunities. This scenario analysis exercise also does not directly address climate-related physical risk, our strategic resilience to which is further discussed below.

Key insights from our scenario analysis and resilience test

While the results of any such analysis must be treated with caution – each is necessarily dependent on numerous assumptions and methodological choices, and each has its own limitations – overall, this analysis and resilience test reinforced our confidence in the continued resilience of our strategy to a wide range of transition scenarios, including those consistent with limiting temperature rise to 1.5°C, and in particular, as our greatest transition exposure, to oil price scenarios, tested to 2030. In undertaking this analysis we observed:

- There is considerable uncertainty across, and often within, each WBCSD Scenario Catalogue family in the pace and nature of the transition to 2030 – and therefore considerable range of financial impact across some of the variables selected for the analysis, reflecting the complexity and interdependencies of the energy transition (see table on **page 67**). Generally, we observed that the faster the pace of transition, the greater the uncertainty in the exact shape of the resulting energy system in 2030.
- Oil price is likely to remain the main source of climate-related transition uncertainty for our strategy through to 2030, reflecting both the wide range of potential pathways and the contribution to our expected total adjusted EBITDA over this period, that oil-price-linked businesses represent[b]. In the 1.5°C family, the potential downside suggested by the lowest oil prices is around 27% of group adjusted EBITDA in 2030. However, in a number of the scenarios based on the WBCSD Scenario Catalogue ranges, including those consistent with well-below 2°C and BAU families, oil price could offer a financial upside relative to our reference 2030 group business outlook.
- Even with the most extreme low oil price environment in any of the scenarios, sustained over the period from 2025-30[c] and taking into account our ability to optimize our capital within the frames set out in our strategy (last communicated at the 10-11 October 2023 investor update), in our analysis we are able to deliver across the three lenses we use to consider strategic resilience, described above.
- The maximum potential scale of downside impact on our 2030 expected group adjusted EBITDA (across the 1.5°C, well-below 2°C and BAU scenarios) from our other natural gas businesses was <6%,while from each of our conventional refining, fuels and low carbon activities★ was modelled to be <4%.
- Our diversified portfolio helps mitigate the implications for our strategic resilience of the exposure of any of one of the individual business areas to the identified risk. It is reasonable to consider each potential outcome in isolation since the outcomes for different business areas vary across scenarios (see table on **page 67**).
- In a BAU scenario, we believe our transitioning strategy mitigates the risk of what we and others have referred to as a 'delayed and disorderly' transition, which might follow in the medium to long term. Should the growth of any one of our in-scope transition growth engine areas be challenged by the downside range in the relevant variable, our analysis suggests that the impact of this on group adjusted EBITDA in 2030 would not be sufficient to impact the resilience of our strategy, as described above, in that timeframe.

a Although such scenarios do not and cannot represent all possible futures, we value them as a simplified and schematic way to consider the potential implications of, and uncertainty inherent within, a range of possible energy transition pathways to a future bp portfolio mix.

b Note that for the purposes of our scenario analysis and resilience test, we have assessed the impact of oil price across both our oil production businesses and those natural gas businesses for which commercial outcomes are linked to oil price.

c Our multi-year (2023-30) oil price resilience test considered sustained low oil prices consistent with the most extreme WBCSD Scenario Catalogue 2025 and 2030 scenarios – for 2025 the IEA (World Energy Model Net Zero Energy 2050) price at $52/bbl, and for 2030 the UN PRI (Inevitable Policy Response Required Policy Scenario) at $31.8/bbl (both 2021 $ real and then inflated in line with bp's other planning assumptions).

It is important to note that insights from this analysis are necessarily limited by the scenarios, methodologies and business assumptions used. The analysis should not be taken as a prediction of the future.

Maintaining strategic resilience to the transition

Taking into consideration potential constraints associated with factors such as long-term capital investment, contractual commitments and organizational capabilities at any given time, bp's ability to maintain strategic resilience rests, in part, on the governance used to keep the strategy under review in light of new information and changing circumstances. To enable us to understand and respond to the changing pace of the energy transition, we monitor and assess key indicators and metrics, such as policy development, renewables installed capacity, EV sales and low carbon technology costs. Our strategy and capital allocation, the associated risks, opportunities and their implications for our resilience are all reviewed by the bp leadership team and the board and updated as they consider appropriate.

Resilience to physical risk

As described on **page 62**, we have identified a number of physical risks which may affect our business and assets, the frequency or severity of which could be affected by climate change. Exposure to physical climate-related risk is highly dependent on geographical location and on factors such as asset design, and we seek to manage these risks accordingly. We consider that our approach to managing these risks, described in Risk Management Recommended Disclosure b) on **page 59**, supports our strategic resilience to them.

For the purposes of this Recommended Disclosure, we have considered the potential for physical risks to bp-operated assets to increase as a result of climate change (namely, increases in the potential frequency or intensity of extreme weather events) to such an extent as to have the potential to impact the resilience of our strategy.

During 2022, we undertook an analysis of potential changes in certain physical conditions, such as air temperature, precipitation, sea level rise and wave heights, for our onshore and offshore major operating sites, based on Shared Socioeconomic Pathway[d] (SSP) emission scenarios 1-2.6, 2-4.5 and 5-8.5.

Even in the highest emissions pathway (SSP5-8.5) the results of our analysis suggest that, on the basis of the 50th percentile values and compared to the baseline used (1991-2020), changes in the physical parameters considered are generally unlikely to be significant over the medium term.

There is, however, uncertainty across different scenarios and wider variances were observed when looking at the 5th and 95th percentile values. Where the data do suggest greater potential for climate-related changes in physical conditions, we intend to consider whether further work is necessary to understand the potential for those changes to adversely impact our operations. For example, modelled changes in extreme precipitation by 2030 (50th percentile values) are less than 10% across all onshore major operating sites apart from Oman – where we have already undertaken hydrological studies and flood risk assessments that have supported the development of our operations there.

Our transition risk scenario analysis identified impacts on the earnings of our oil-priced businesses as having the most potential to impact the resilience of our strategy in 2030. Therefore, and viewing resilience through the same lenses that we describe above, we have considered the extent to which our oil and gas production business would need to be impacted by evolving physical risk over the same timeframe for the scale of financial impact to be sufficient to jeopardize the resilience of our strategy out to 2030. We concluded that a significant proportion of our combined oil and gas portfolio would need to be either permanently shut in or temporarily shut down to jeopardize our strategic resilience in this way.

Historically, severe weather risks to our operated assets have not occurred at a scale which could reduce earnings so significantly as to jeopardize the resilience of our strategy. As reflected in the latest science from the IPCC, it is in the nature of climate-induced severe weather events that their occurrence, intensity and severity are unpredictable and uncertain. Our own analysis on major operating sites, described above, is consistent with this IPCC view.

Despite this uncertainty, we have found no definitive basis in either the IPCC report or the limited number of detailed studies we have undertaken (see **page 62**), to conclude that climate-change-induced increases in the frequency or severity of severe weather events would be likely to result, at any point in time out to 2030, in disruption and shutdowns across our oil and gas portfolio on a scale that would reduce earnings so significantly as to jeopardize the resilience of our strategy.

For the purposes of this Recommended Disclosure, the resilience of our strategy was considered separately for the relevant transition and physical risks; accordingly, we did not seek to take account of any interdependencies or cumulative effects between the two types of climate-related risk, and the associated potential financial impact.

d. SSPs have been developed by the climate change research community to describe plausible major global developments that together would lead in the future to different challenges for mitigation and adaptation to climate change. The SSPs are based on five narratives describing alternative socioeconomic developments, including sustainable development, regional rivalry, inequality, fossil-fuelled development and middle-of-the-road development.

Our approach to testing resilience to transition risk

Most of our analysis focused on our medium-term time horizon (2030) – far enough ahead to provide a divergent range of scenarios, while not so far ahead that it is unrealistic to attempt to generate credible financial metrics for bp, or an individual business area within bp. For variables considered most significant (see below), we also assessed resilience over the period 2025-30.

Our analysis sought to quantify the potential impact of a range of scenarios, including those consistent with 1.5°C, on bp's currently held (at the time the analysis was completed) internal reference group business outlook to 2030. This outlook is used for internal corporate planning and holds a current deterministic view of our portfolio, activity set, cost and capital frame. The outlook used in our analysis aligned to the strategic direction shared at the 10-11 October 2023 investor update, and the financials lie within the range of financial outcomes set out in that announcement.[a]

The steps we took as part of our scenario analysis approach are outlined here at a high level.

1. **Whole company assessment**: We defined, through quantitative analysis, which business areas could have both the financial scale and clear transition exposures to potentially impact bp's strategic resilience.

a. We assessed the business areas in our portfolio by i) quantitatively evaluating each business area's 'potential significance' – i.e. its expected contribution to bp group adjusted EBITDA★ in 2030 and therefore the quantum of financial impact that might be put at risk by transition uncertainty (including pathways consistent with 1.5°C), and ii) by identifying, for each, whether there were primary potential value driver(s) that different transition pathways might impact ('transition risk driver(s)'). This was performed to allocate the most appropriate analysis technique to that business (see 1b and 1c).

b. Ten business areas (see table on **page 67**), representing over 80% of our expected 2030 adjusted EBITDA, were identified as both providing a potentially significant financial contribution and facing primary transition risk drivers, and accordingly were subjected to the driver-based scenario analysis set out in steps 2a-2c below.

c. The remaining business areas were taken forward to a simplified scenario analysis, per step 2d below.

2. **Scenario analysis**: We tested the financial impact of transition on all of bp's business areas in 2030 through either specific 'driver-based' scenario modelling (that includes 1.5°C and current policies), or by 'simplified' conservative scenario analysis, that modelled cases likely to be beyond these ranges.

a. For the driver-based scenario analysis, we selected the primary transition risk driver(s) for each business area – the variable(s) from the WBCSD Scenario Catalogue representing what we consider to be the primary driver(s) of that business area's exposure to the energy transition. For each transition risk driver, we extracted the full range of 2030 outcomes within each scenario 'family'. Given the global nature of the transition risks and opportunities we have identified, we used the 'world' values in the Catalogue except for gas price (see table on **page 67**).

b. By calibrating the WBCSD Scenario Catalogue 2030 scenarios to relevant business metrics underpinning our strategic planning (for example, oil price or EV demand/utilization), we modelled the impact of each variable, across the full range of scenarios and each scenario family, on the 2030 expected earnings (adjusted EBITDA) for the associated business area(s). For example, we applied an earnings rule of thumb deemed appropriate to the period in question to the deviation of oil prices in WBCSD versus our reference case price. This analysis was unmitigated (see 'Other key considerations').

c. This enabled us to assess the potential for each scenario to materially impact group adjusted EBITDA in 2030 (and by implication associated cash flows), against the reference group business outlook. By modelling the specific business area within the reference group business outlook (described in step 1b above), its exposure to the most extreme range of the respective scenario could be assessed to identify which (if any) variables(s) and scenario(s) could have the potential to impact strategic resilience (as defined below) most materially, and as such, which business areas should be carried forward into a multi-year resilience assessment.

d. For the simplified scenario analysis, we took a simpler conservative approach, by evaluating whether a scenario in which each business area's expected 2030 adjusted EBITDA is assumed to be reduced to zero – an outcome at least as detrimental to that business area's adjusted EBITDA as could reasonably be expected to result from ranges associated with the trajectory of each of the 1.5°C, 2°C or BAU scenario families – could have the potential to impact strategic resilience (as defined below) materially.

3. **Multi-year resilience test**: This step tested bp's resilience to the exposure of any sufficiently material business areas to downside scenarios that may have the potential to jeopardize the ability to generate surplus cash flow★ and a strong cash cover ratio and gearing level – financial metrics that were treated for the purposes of the analysis as representing financial evidence of delivery of bp's strategic priorities. From step 2, only the exposure to oil price was assessed as sufficiently material in this sense, and hence carried forward for multi-year resilience analysis. Our multi-year (2025-30) oil price resilience test considered sustained low oil prices consistent with the most extreme WBCSD Scenario Catalogue 2025 and 2030 scenarios – for 2025 the IEA (World Energy Model Net Zero Energy 2050) price at $52/bbl, and for 2030 the UN PRI (Inevitable Policy Response Required Policy Scenario) at $31.8/bbl (both 2021 $ real).

Other key considerations

- For the purposes of steps 2 and 3, we considered the resilience of our strategy to climate-related transition risk through the three lenses described on **page 61**. We defined the following as proxy indicators for these lenses:
  - Group surplus cash flow, to confirm whether after funding, among other things, capital spend within our disclosed capital frame (10-11 October 2023 investor update) and the dividend/share assumed in our reference group business outlook, sufficient surplus cash flow remains to maintain or reduce net debt and/or make share buybacks.
  - Healthy cash cover ratio and gearing★ as indicators of the ability to maintain a strong investment grade credit rating.

a As was the case for the analysis presented in the *bp Annual Report and Form 20-F 2021*, the financials used do not include any reference to the shareholding in Rosneft that bp announced its intention to exit from on 27 February 2022.

- For steps 2 and 3, we made the simplifying assumption that, aside from the driver being modelled, our strategy, operating model, cost basis, volumes, margins, sales proceeds and taxes would remain unchanged out to 2030. We have also not deviated from bp's reference view of potential future shareholder distributions and uses of surplus cash as a basis for analysis.
- There are a range of mitigations or actions that we might naturally be expected to take in response to external market, price and demand trends, including cost reductions, portfolio adjustments, capital reallocation or capital reductions within the frames set out in our strategy.
- For steps 2 and 3, given we would seek to make use of opportunities to maintain our strategic flexibility in the face of the many uncertainties of the energy transition, our methodology retains the optionality in downside scenario modelling to apply some or all of these mitigations.
- The design of a strategic resilience analysis involves numerous methodological choices and assumptions – any one of which could reasonably have been different, leading to different outcomes. We have found value in conducting this analysis; however, we are mindful of the limitations to any such exercise and the highly qualified nature of any conclusions which may be drawn from it. The disclosures provided here should be read in conjunction with the rest of our strategic report, where we discuss how we have developed, and continue to evolve, our approach to strategy.
- As outlined above, we utilized our latest internal reference group business outlook as the basis against which resilience has been tested, as this is our latest deterministic view against which to model the transition sensitivities to 2030 and aligns to the strategic update provided to investors in October 2023. Alongside disclosed elements such as the capital frame range to 2030, this includes shaping assumptions such as future distribution and net debt management. Through conducting this analysis, we do not intend to imply or commit to a specific forward trajectory of usage of cash, beyond those disclosed in the investor update in October 2023 and previously published strategy updates.

While we cannot disclose, for confidentiality reasons, the detail of the deterministic case, the test assesses whether the resilience indicators in our reference group business outlook are impacted by the transition uncertainties tested. Further, by the nature of the timeframes considered, a variety of uncertainties exist around this deterministic case (including transition risk itself) as indicated by the range of adjusted EBITDA disclosed in the full year and 4Q results update on 6 February 2024. It is not practical, and we have not attempted, to extend the analysis conducted here to any other potential outcomes within the disclosed range of group adjusted EBITDA.

- Where rules of thumb have been applied, to convert variance in hydrocarbon price to variance in adjusted EBITDA, these are deemed appropriate to the period in question – i.e. they reflect the respective 2030 (step 2) and 2025-30 (step 3) portfolios and price leverage for this period. Due to the evolution of bp's portfolio, these rules of thumb may diverge from any short-term rule of thumb that we publish.

WBCSD Scenario Catalogue family ranges for 2030 key transition variables

				BAU		Below 2°C		1.5°C	
Business area			**TCFD/WBCSD variable**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
Resilient hydrocarbons	**Oil and natural gas production**		Oil price[a] ($2021/bbl)	62.12	82.00	47.70	76.88	31.80	68.87
			Natural gas price[b] ($2021/mmbtu)	3.73	5.42	2.91	5.61	1.90	5.88
	Refining	**– refined oil demand**	Primary energy demand for oil (% vs 2020)	-0.1	15.2	-3.1	11.6	-16.8	-1.0
		– bio-jet demand	Final demand for liquid biofuels in aviation (EJ/yr)	0.21	1.03	0.21	1.64	0.44	1.73
	Biogas		Biogas demand in road transport (EJ/yr)	0.00	0.18	0.01	0.25	0.00	0.19
Convenience and mobility	**EV charging**		Final energy demand for electricity in road transport (EJ/yr)	2.53	6.49	3.40	8.37	4.09	9.18
	Aviation fuel sales		Liquid fuel consumption in aviation (EJ/yr)	14.95	20.06	14.73	18.84	9.37	14.66
	Conventional fuels retail		Final energy demand for liquid oil in road transport (EJ/yr)	72.17	93.57	65.20	93.87	48.57	78.92
	Conventional B2B & supply								
	Conventional road lubricants								
Low carbon energy	**Renewables**		Renewable capacity additions (GW vs 2020)	3,055	6,181	3,131	7,671	5,438	9,797
	Hydrogen production		Hydrogen consumption (EJ/yr)	0.20	4.32	0.20	5.28	0.48	10.75

For the other business areas not shown above, we applied the generic scenario analysis methodology described in point 2d on **page 66**, thereby ensuring coverage of all of bp's business areas.

a Oil price sensitivities have been applied to the oil and gas production portfolio that is linked to oil marker prices – as such it not only reflects oil production exposure, but also a proportion of bp's natural gas production that is contracted off oil marker prices.

b Gas prices shown reflect Henry Hub price ranges. Where available in the TCFD/WBCSD data sets Asian and UK gas price sensitivities have also been selected and compared to the Henry Hub sensitivity percentages with the maximum deviation selected and applied to the respective Asian and NBP rules of thumb for these parts of the gas portfolio, in order to provide the most conservative uncertainty range.

Climate-related financial disclosures continued

Metrics and Targets

TCFD Recommendation:

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

We present the principal group-wide metrics and targets used to assess and manage climate-related risks and opportunities in line with our strategy and risk management process below, with metrics and targets mapped to the most relevant of TCFD's cross-industry, climate-related metric categories (such as 'transition risks').

The metrics and targets themselves are disclosed at the most appropriate locations in this strategic report.

TCFD recommended disclosures – metrics and associated targets/goals

a) Disclose the metrics used by the organization to assess material climate-related risks and opportunities in line with its strategy and risk management process.	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.
Transition risks	
· Note 5 to Financial statements: Segmental analysis. Segment revenue (in table), **pages 193-197**. · Estimated net proved reserves and production (net of royalties), **page 38**. · Note 4 to Financial statements: Disposals and impairments, **pages 190-192**. · Note 8 to Financial statements: Impairment losses (in table), **page 198**. · Oil and natural gas prices used for value-in-use impairment testing and recoverability of asset carrying values, **pages 178** and **280**.	Our strategic 2025 targets and 2030 aims – resilient hydrocarbons, **page 13**.
Physical risks	
· Number of major operating sites in regions with medium to extremely high water stress, **page 60**. · Freshwater withdrawals and consumption at major operating sites in regions with high or extremely high water stress, **page 54**.	Aim 17 (water positive): progress update, **page 54**.
Climate-related opportunities	
· Our strategic metrics, **page 13** (in table, relevant metrics with T). · Note 5 to Financial statements: Segmental analysis. Segment revenue (in table), **pages 193-197**. · Adjusted EBITDA★ from transition growth engines, **page 12**. · Renewables – installed capacity, developed to FID and pipeline, **page 39**.	Our strategic 2025 targets and 2030 aims – convenience and mobility, and low carbon energy, **page 13**.
Capital deployment	
· Disciplined investment allocation: 2022-25 guidance, capital allocation and internal rate of return (IRR), **page 28**. · Price assumptions, key investment appraisal assumptions, **page 30** (in table, indicated with T). · Amount invested in transition growth engines (aim 5), **page 50**. · Additional information – capital expenditure by segment, **page 336**. · Note 7 to Financial statements: expenditure on research and development (in table), **page 197**. · Note 8 to Financial statements: exploration and evaluation costs (in table), **page 198**.	Aim 5 (more $ into the transition): progress update, **page 50**.
Internal carbon prices	
· Internal carbon price, **page 30**.	
Remuneration	
· Directors' remuneration report metrics: Sustainable emissions reductions, **pages 114-115**.	Aim 7 (incentivizing employees): progress update, **page 50**.
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	
GHG emissions	
· Key performance indicators (relevant KPIs shown with T), **page 24**.[a] · Scope 1 and 2, in SECR table **page 51**. · Ratio of Scope 1 and 2 emissions: gross production, in SECR table **page 51**. · Scope 3 (category 11, to which our aim 2 relates) performance, **page 49**.[b] · TCFD: risks as described in Strategy A, **page 60**. · Risk factors, **page 77**. A further breakdown of our GHG and energy data by business group is available in our ESG datasheet at **bp.com/ESG**	Aim 1 (net zero operations): progress update, **page 48**. Aim 2 (net zero production): progress update, **page 49**. Aim 3 (net zero sales): progress update, **page 49**. Aim 4 (reducing methane): progress update, **page 49**.

a These are our KPIs for the purposes of our disclosures pursuant to the UK CFD Regulations and Section 414CB (2A) (h) of the Companies Act 2006.
b In determining the Scope 3 emissions that are 'appropriate' to be disclosed for the purposes of this Recommended Disclosure, we have considered this term in the context of the recommendation to disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities. The relevant target that we use in respect of Scope 3 emissions is our aim 2, which is aligned to category 11 of Scope 3.

Sustainability continued

Our approach to sustainability

Our approach to sustainability is targeted, systematic and collaborative – built on strong foundations that guide the way we work and support our net zero, people and planet aims.

Safety comes first

At bp, safety comes first. We want to improve our safety performance and work towards the goal we set in 2021 to eliminate fatalities, life-changing injuries and tier 1 process safety events.

We deeply regret the fatalities and life-changing injuries that occurred at bp in 2023. In May a contractor in our US Permian operations was fatally injured when operating a forklift, and in June a contractor in the same region suffered a life-changing injury while performing manual activity. At our TravelCenters of America business, one employee was struck by a vehicle and fatally injured and another employee was killed in a workplace violence incident[a].

We have offered our condolences and support to the families and employees affected. We are taking action to learn from these incidents to help drive further improvements in safety.

Keeping people safe

We monitor and report on key workforce personal safety metrics in line with industry standards. We include both employees and contractors in our data.

In 2023 our recordable injury frequency (RIF) increased by 47% compared to 2022. We attribute an increase in injuries in part to the onboarding of retail operations we acquired such as *Thorntons*. Plans are in place to help prevent injuries in future.

In 2023 we made further improvements to mitigate safety risks in refining and production by strengthening our safety barriers and the guidance in our Operating Management System (OMS).

RIF key performance indicator, **page 24**

Driving safety

Driving is one of the biggest personal safety risks we face at bp. In 2023 seven severe vehicle accidents occurred, a decrease from 10 in 2022. The number of kilometres driven fell by 4.2% over the same period.

	2023	2022	2021
Severe vehicle accident rate	0.023	0.037	0.034

Our Operating Management System

Our OMS provides a single group-wide framework for delivering safe, reliable and compliant operations. Our OMS sets out the way in which our businesses around the world are expected to understand and manage their environmental and social impacts, including requirements on engaging with stakeholders who may be affected by our activities.

We review and amend these requirements from time to time to reflect our priorities. Any variations in the application of our OMS, in order to meet local regulations or circumstances, are subject to a governance process. Recently acquired operations need to transition to our OMS.

In 2023 we updated our OMS with a view to making it simpler and clearer, to support more rigorous application. The updates included revised requirements in our environmental and social practices that cover investment decisions, projects and operations. These updated practices set out requirements to identify, prevent and mitigate carbon, environmental and social impacts and risk and to identify related opportunities.

Our OMS requires each of bp's operating businesses and functions to create and maintain its own OMS handbook, describing how it will carry out its local operating activities.

We use a 'three lines of defence' model to test the effective management of all types of risk, including safety. The nature and extent of first, second and third lines of defence activities are based on the type and level of risk.

Preventing incidents

We carefully plan our operations with the aim of identifying potential hazards and having rigorous operating and maintenance practices applied by capable people to manage risks at every stage. We design our new facilities in line with process safety, good design and engineering principles. We track our safety performance using industry-aligned metrics such as those found in the American Petroleum Institute recommended practice 754 and the International Association of Oil & Gas Producers recommended practice 456.

Our combined reported tier 1 and tier 2 process safety events★ (PSEs) have generally decreased over the last 11 years, apart from in 2019. This downward trend continued in 2023, with 11 fewer (22%) than in 2022.

We investigate serious or complex incidents, which may include near misses, and we also use leading indicators, such as inspections and equipment tests, to monitor the strength of controls to prevent incidents.

We have also made progress in preventing and reducing spills. In 2023 there were 100 oil spills compared with 108 in 2022. Although portfolio changes may affect the overall baseline of our operations, our goal is still the elimination of tier 1 PSEs.

	2023	2022	2021
Tier 1 and tier 2 process safety events★	**39**	50	62
Oil spills – number	**100**	108	121
Oil spills – contained	**52**	57	73

a In 2023 bp acquired the US-based TravelCenters of America business. Shortly after the acquisition was completed, two separate incidents occurred resulting in fatalities. At the time of publication, TravelCenters of America safety reporting processes were still being integrated into bp's reporting processes and as such, these fatalities are not included in reported fatality data for 2023.

Emergency preparedness

The scale and extent of bp's operations mean we must be prepared to respond to a range of possible disruptions and emergency events. We maintain disaster recovery, crisis and business continuity management plans and work to build day-to-day response capabilities to support local management of incidents. We test our plans and preparedness through exercises that simulate real-life scenarios. In 2023 we conducted a number of exercises in countries including Egypt and Spain.

Security

We monitor for hostile actions that could harm our people or disrupt our operations. These actions might be connected to political or social unrest, terrorism, armed conflict or criminal activity. We take these potential threats seriously and assess them continuously. Our 24-hour response information centre in the UK uses state-of-the-art technology to monitor evolving high-risk situations in real time. It helps us to assess the safety of our people and provide them with practical advice if there is an emergency.

Cyber security

The severity, sophistication and scale of cyber attacks continues to evolve. Increasing digitization and reliance on IT systems and cloud platforms makes managing cyber risk an even greater priority for many industries, including our own. Direct or collateral impact can come from a variety of cyber threat actors, including nation states, criminals, terrorists, hacktivists and insiders. As in previous years, we have experienced threats to the security of our digital systems and our barriers have worked well to mitigate and contain them to minimize any impact on our business.

We have a range of measures to manage this risk, including the use of cyber security policies and procedures, security protection tools, threat monitoring and event detection capabilities, and incident response plans. We conduct exercises to test our response to, and recovery from, cyber attacks. We collaborate closely with governments, law enforcement and industry peers to understand and respond to threats.

To encourage vigilance among our employees, our extensive cyber security training courses and awareness programme provide regular education on a wide range of topics such as phishing and the correct classification and handling of our information. We also use a cyber barometer tool to empower individual risk mitigation.

How we manage risk, **page 73**
Additional disclosures – cyber security, **page 360**

Working with contractors

Through documents that help bridge between our policies and those of our contractors, we define the way our safety management system co-exists with systems used by our contractors to manage risk on a site. We conduct risk-based quality, technical, health, safety and security audits before awarding contracts. Once contractors start work, we continue to monitor their safety performance. Our OMS includes requirements and practices for working with contractors. Our standard model contracts include health, safety and security requirements. We expect and encourage our contractors and their employees to act in a way that is consistent with our code of conduct and take appropriate action if those expectations, or their contractual obligations are not met.

Our partners in joint arrangements

We monitor performance and how risk is managed in our joint arrangements★, whether we are the operator or not. In joint arrangements where we are the operator, our OMS, code of conduct and other policies apply. We aim to report on aspects of our business where we are the operator – as we directly manage the performance of these operations. Where we are not the operator, our OMS is available as a reference point for bp businesses when engaging with other operators and co-venturers. We have a group framework to assess and manage bp's exposure related to safety, operational and bribery and corruption risk from our participation in these types of arrangements.

Where appropriate, we may seek to influence how risk is managed in arrangements where we are not the operator.

The people and governance committee reviews workforce policies and practices and their alignment with bp's strategy, purpose, beliefs and culture, and conducts workforce engagement measures.

People and governance committee report, **page 94**

Our people

Workforce by gender

	Male		Female		Female %	
As at 31 December 2023	**2023**	2022	**2023**	2022	**2023**	2022
Board directors	**6**	6	**6**	5	**50**	45
Leadership team	**4**	5	**7**	6	**64**	55
Group leaders	**193**	187	**102**	91	**34**	33
Subsidiary directors	**384**	488	**174**	212	**31**	30
All employees[a]	**51,800**	41,000	**35,900**	26,500	**41**	39

Number of employees

As at 31 December 2023	**2023**	2022	2021
Gas & low carbon energy	**4,800**	4,200	4,000
Oil production & operations	**8,800**	8,600	8,800
Customers & products	**63,400**[b]	44,700	43,600
Other businesses & corporate	**10,800**	10,100	9,500
Total	**87,800**	67,600	65,900

a Some employees have not disclosed gender, therefore are not included in this total.
b This figure reflects new acquisitions including TravelCenters of America.

Our culture

We want to build a culture in which all our employees can thrive. Our culture frame 'Who we are' sets out the culture we want to build at bp.

Our culture is reinforced by various factors including our code of conduct, our approach to diversity, equity and inclusion, compliance with local legislation and regulations, speak-up channels and monitoring employee sentiment. Read more about the board's role in overseeing bp's culture on **page 97**.

Developing our people

Our people are crucial to delivering our purpose and strategy. We aim to recruit talented people from diverse backgrounds, and we invest in training, development and competitive rewards for them. We focus our attraction, recruitment, development and retention activities to provide the support and skills they need to thrive and help bp succeed.

In 2023 we strengthened our development offer, evolving it to meet the demands of the energy transition. We launched several development initiatives, including new learning pathways on our global learning platform grow@bp, to help employees increase their knowledge of our sustainability aims, the energy transition and our transition growth engines.

In 2023 bp employees collectively completed more than 1.3 million hours of formal learning (2022 1.1 million hours). This learning is available to all employees and covers safety, technical, leadership, digital and sustainability skills. Our development offer also includes our mandatory curriculum focused on compliance with applicable laws and regulations as well as conformance with bp's internal standards.

Diversity, equity and inclusion

Our aim 14 is greater diversity, equity and inclusion for our workforce and our customers, and to increase supplier diversity spend by 2025 to $650 million for US-related spend[a]. We want our workforce and customers to experience greater equity – fair treatment according to everyone's different needs and situations. We aim to do this by improving workforce diversity and workplace inclusion, making customer experiences more inclusive, and increasing our annual expenditure with certified diverse suppliers, including female and under-represented or minority groups, to $650 million for US-related spend by 2025.

We report information and disclose against targets on the representation of women and ethnic minorities on our board and executive management. Read more on **page 83**.

Gender equality

We are working to further improve the gender balance across our workforce. In December 2023 seven of the 11 positions in our leadership team were held by women. Our ambition is to reach gender parity for the top levels of leadership (top 120 roles) by 2025 and parity for all executive-level employees (group leaders) by 2030. We also have an ambition of 40% female representation for the next layer of senior leadership (senior-level leaders) by 2030. In 2023 34% of group leader roles were filled by women (2022 33%).

bp Gender and Ethnicity Pay Gap Report, **bp.com/ukgenderpaygap**

Ethnic diversity

We have made progress on our ambition to increase minority representation in the UK and US.

In 2023 we continued our Leadership Inclusion for Talent (LIfT) programme – a 12-month development experience – to support the progression of under-represented minority talent in the US and UK into senior leadership roles.

We also delivered our mandatory Race4Equity racial equity and inclusion training programme to almost 100% of our most senior leaders and 84% of employees at other levels in the US and UK.

In 2023 33% of our group leaders came from countries other than the UK and the US (2022 33%).

Read more in our DE&I report at **bp.com/diversity**

Composition of the board, **page 83**

Diversity reporting in line with the Parker Review, **page 96**

Diversity reporting in line with the Listing Rules, **page 133**

Inclusion

To promote an inclusive culture, we provide leadership training and support employee-run advocacy groups in areas such as gender, ethnicity, sexual orientation and disability.

As well as bringing employees together, these groups support our recruitment programmes and provide feedback on the potential impact of policy changes. Each group is sponsored by a member of the bp leadership team.

We aim to provide equal opportunity in recruitment, career development, promotion, training and reward for all employees – regardless of ethnicity, national origin, religion, gender, age, sexual orientation, marital status, disability or any other characteristic protected by applicable laws.

We have embedded 'Hiring Inclusively', a set of globally consistent recruiting principles to help enable an inclusive, equitable approach to hiring. It supports recruiters to review internal and external market data for skills availability by gender and by other historically under-represented groups in some geographies.

Supporting disabled employees

We continue to take steps to help improve the experience of the workplace for employees with disabilities, with support from employee-led disability, neurodiversity, and mental wellbeing business resource groups (BRGs) offering:

- Inclusive recruitment training, disability and neurodiversity awareness sessions, as well as specific internships and apprenticeships.
- Access to assistive technology support (such as voice recognition software and screen readers) for all employees.
- Improved accessibility in communications, ensuring bp's brand visual standards are more accessible.

If existing employees become disabled, our policy is to engage and use reasonable accommodations or adjustments to enable continued employment.

We have partnerships to help source talent, assist with research and training and support students with disabilities to build the skills they need to access the workplace. Our partners include the National Organization on Disability in the US, and the Business Disability Forum in the UK. bp is also part of the Valuable 500 – a global business collective made up of 500 CEOs and their companies, to drive lasting change for people around the world living with a disability.

Employee engagement

Our managers hold team and one-to-one meetings with their team members, complemented by formal processes through works councils in parts of Europe.

We regularly communicate with employees on factors that affect bp's performance, and seek to maintain constructive relationships with labour unions formally representing our employees.

We monitor employee sentiment through our 'Pulse annual' employee survey, which is sent to all eligible employees, and through our 'Pulse live' survey, which is sent to a representative sample of employees weekly. Our overall engagement metric, employee engagement, increased to 73% (2022 70%), while pride in working for bp increased to a record 80% (2022 78%).

We will continue to develop engagement plans based on feedback from the annual and weekly surveys to help us deliver on safety, and meet our strategic objectives and our 2025 targets, focusing on four areas to drive further progress – leadership, transforming, psychological safety and inclusion.

Our employee engagement key performance indicator, **page 27**

How the board engaged with the workforce, **page 92**

Share ownership

We encourage employee share ownership and have a number of employee share plans in place. For example, we operate a ShareMatch plan, matching bp shares purchased by our employees. We also make annual share awards as part of our total reward package all for senior and mid-level employees globally, and a portion of our more junior professional grade employees.

Directors' remuneration report, **page 105**

a In 2023 we reset our supplier diversity target from $1 billion by 2025.

Mental health and wellbeing

We include an employee wellbeing index in our 'Pulse annual' employee survey and weekly 'Pulse live' surveys. Results from 2023 showed that employee wellbeing increased by four points to 72% (2022 68%).

We took further action to create workplaces where people can talk openly about mental health and get help if they need it. We updated our mental health training programmes, which are designed to build employees' awareness and their ability to care for themselves and others.

Ethics and compliance

Our code of conduct

Our code sets standards and expectations for how we do the right thing and empowers our employees to speak up without fear of retaliation.

It puts safety first, and together with our Safety Leadership Principles and Operating Management System (OMS), helps us make safe and ethical decisions, act responsibly, comply with applicable laws and deliver on our sustainability frame.

Our code applies to all bp employees, officers and board members. Our regular mandatory training and communications help employees understand how to apply our code and how to raise questions or concerns.

All bp employees are required to confirm annually that they have read and understand our code and complied with its principles. We expect and encourage all our contractors and their employees to act in ways that are consistent with it.

Any concerns or enquiries can be raised through multiple speak-up channels. These include line managers, senior leaders, and contacts in our people & culture, ethics & compliance or legal teams. We also have a confidential global helpline, OpenTalk. It is available in 75 languages and can be accessed all day, every day on the telephone or internet, by employees, the wider workforce, communities, business partners and other stakeholders. In most locations, anyone has the right to contact OpenTalk anonymously except where this is prohibited by law.

Any instances where we believe individuals have fallen short of our expectations, set out in our beliefs, 'Who we are' and our code of conduct, are taken very seriously and, where appropriate, a formal investigation is carried out.

We may take action in response to reported concerns, for example through training and monitoring trends in our 'Pulse annual' employee survey data to help proactively mitigate issues around misconduct. We follow a disciplinary process and will issue sanctions where appropriate, which may include dismissal.

We received more than 2,250 concerns or enquiries through these channels in 2023 (2022 1,350). In 2023 around 66 separations resulted from non-conformance with our code or unethical behaviour[a].

As in 2022 the most frequently raised concerns related to bullying, harassment and discrimination, with these accounting for around half of all concerns. The second most common issue was alleged fraud.

bp.com/codeofconduct

Anti-bribery and corruption

We operate in parts of the world where bribery and corruption present a high risk. We have a responsibility to our employees, our shareholders and the countries and communities in which we do business to be ethical and lawful in all our work.

Our code of conduct explicitly prohibits engaging in bribery or corruption in any form. Our group-wide anti-bribery and corruption policies and procedures include measures and guidance to assess risks, understand relevant laws and report concerns. They apply to all bp-operated businesses.

We provide appropriate training including for those employees in locations or roles assessed to be at a higher risk of bribery and corruption. In 2023 around 10,500 employees completed anti-bribery and corruption training as part of our ethics and compliance risk-based learning. This is higher than the 7,500 employees trained in 2022, due to the rolling time schedule we use to assign training.

We also conduct anti-bribery compliance audits on selected suppliers to assess their conformance with our anti-bribery and corruption contractual requirements. We take corrective action with suppliers and business partners who fail to meet our expectations, which may include terminating contracts. In 2023 we issued 31 ABC supplier audit reports (2022 37).

Political donations and activity

We prohibit the use of bp funds or resources to support any political candidate or party. We recognize the rights of our employees to participate in the political process and these rights are governed by the applicable laws in the countries where we operate. Our stance on political activity is set out in the bp code of conduct.

In the US we provide administrative support for the bp employee political action committee (PAC) – a non-partisan, employee-led committee that encourages voluntary employee participation in the political process. All bp employee PAC contributions are weighed against the PAC's criteria for candidate support and reviewed for compliance with federal and state law before funds are passed to the recipients requested by our employees, and are publicly reported in accordance with US election laws. Donations to political candidates made by the PAC are from employee contributions and not bp funds.

Tax transparency

Our code of conduct informs the responsible approach we take to managing taxes. We have adopted the B Team responsible tax principles and we engage in open and constructive dialogue with governments and tax authorities.

We comply with the tax legislation of the countries in which we operate and we do not tolerate the facilitation of tax evasion by people who act for or on behalf of bp.

We are committed to transparency around our tax principles and the taxes we pay. We paid $11.9 billion in corporate income and production taxes to governments in 2023 (2022 $12.5 billion).

bp Tax Report, **bp.com/tax**

a This total excludes exits of contractors, suppliers, vendors and employees at our retail and heliport sites.

How we manage risk and risk factors

How we manage risk

bp manages, monitors and reports on the principal risks and uncertainties we have identified that can impact our ability to deliver our strategy. These are described in Risk factors on **page 77**.

bp's system of internal control is a holistic set of internal controls that includes policies, processes, management systems, organizational structures, culture and standards of conduct employed to manage bp's business and associated risks.

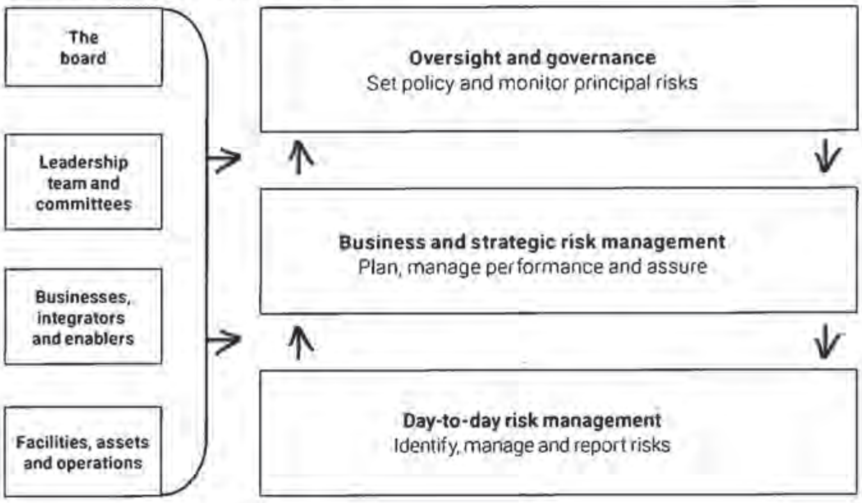
bp's risk management system

bp's risk management system and risk management policy are designed to provide a consistent and clear framework for managing and reporting risks from the group's business activities and operations to management and to the board.

The system seeks to avoid incidents and enhance business outcomes by allowing us to:

- Understand the risk environment, identify the specific risks and assess the potential exposure for bp.
- Determine how best to deal with these risks to manage overall potential exposure.
- Manage the identified risks in appropriate ways.
- Monitor and seek assurance over the effectiveness of the management of these risks and intervene for improvement where necessary.
- Report up the management chain and to the board on a periodic basis on how principal risks are being managed, monitored and assured, with any identified enhancements that are being made.

Our risk management activities



Risk oversight and governance

Our key risk oversight and governance committees include:

Board and committees

- bp board.
- Audit committee.
- Safety and sustainability committee.
- Remuneration committee.
- People and governance committee.

Leadership team and committees

- Leadership team meeting – for oversight and for strategic and commercial risks.
- Group operations risk committee – for health, safety, security, environment and operations integrity risks.
- Group financial risk committee – for finance, treasury, trading and cyber risks.
- Group disclosure committee – for financial reporting risks.
- People and culture committee – for employee risks.
- Group ethics and compliance committee – for legal and regulatory compliance and ethics risks.
- Group sustainability committee – for non-operational sustainability risks.
- Resource commitment meeting – for investment decision risks.
- bp quarterly internal audit meeting – for assurance on the oversight of bp's principal risks.

bp governance framework, **page 88**, board activities, **page 90**, committee reports, **pages 94-107** and risk management and internal control, **page 134**

Acquired businesses

Integration plans are developed to transition acquired businesses into bp's system of internal control and risk management framework, over an appropriate timeframe.

How we manage risk and risk factors continued

Day-to-day risk management

Management and employees at our facilities, assets, and within our businesses, integrators and enablers seek to identify and manage risk, promoting safe, compliant and reliable operations. bp requirements, which take into account applicable laws and regulations, underpin the practical plans developed to help reduce risk and deliver safe, compliant and reliable operations as well as greater efficiency and sustainable financial results.

Business and strategic risk management

Our businesses, integrators and enablers integrate risk management into key business processes such as strategy, planning, performance management, resource and capital allocation and project appraisal. They do this by using a standard framework for collating risk data, assessing risk management activities, making further improvements and in connection with planning new activities.

Oversight and governance

Throughout 2023, management, the leadership team, the board and relevant committees provided oversight of how principal risks to bp were identified, assessed and managed. They supported appropriate governance of risk management including having relevant policies in place to help manage risks.

Such oversight may include internal audit reports, group risk reports and reviews of the outcomes of business processes including strategy, planning and resource and capital allocation. bp's group risk team analyses the group's risk profile and maintains the group's risk management system. bp's internal audit team provides independent assurance to the chief executive and board as to whether the group's system of internal control is adequately designed and operating effectively to respond appropriately to the risks that are significant to bp.

Risk management processes

We aim for a consistent basis of measuring risk to:

- Establish a common understanding of risks on a like-for-like basis, taking into account potential impact and likelihood.
- Report risks and their management to the appropriate levels of the organization.
- Inform prioritization of specific risk management activities and resource allocation.

bp's risk management policy sets out requirements for the group to follow. These requirements support the consideration of three risk types:

- Strategic and commercial.
- Safety and operational.
- Compliance and control.

Risk identification – businesses, integrators and enablers identify risks across the risk types. Risks are identified on an ongoing basis – this can be done using a range of approaches including workshops, subject-matter expertise, hazard identification processes and engineering requirements.

Risk assessment – identified risks are assessed for potential impact and likelihood across a number of criteria, including health and safety, environmental, financial and non-financial (includes reputation and regulatory impact levels).

This aims to provide a consistent basis for the evaluation of potential impact and likelihood, facilitating a comparison across different risks.

Risk management and monitoring – risk management activities are prioritized where improvements are needed based on a number of factors, including the risk assessment, strength of existing risk management measures, strategy and plans and legal and regulatory requirements.

Risk management measures, including mitigations, are identified for each risk and monitored to the extent considered appropriate. To support leadership oversight of decisions relating to risk management, the appropriate organizational level (EVP, SVP, VP) are notified of risks and asked to endorse risk management measures, depending on the assessed potential impact and likelihood.

As part of bp's annual planning process, the leadership team and the board review the group's principal risks and uncertainties. These may be updated during the year in response to changes in internal and external circumstances.

There can be no certainty that our risk management activities will mitigate or prevent these, or other risks, from occurring. Further details of the principal risks and uncertainties faced are set out in Risk factors on **page 77**.

Our risk profile

The nature of our business operations is long term, resulting in many of our risks being enduring in nature. However, risks can develop and evolve over time and their potential impact or likelihood may vary in response to internal and external events. These may include emerging risks which are considered through existing processes, including emerging risk communications to the board, bp's risk management system, the *bp Energy Outlook*, bp's technology-related news and insights publications, and ongoing emerging technology scanning and group strategic reviews.

We describe above how risks are managed. The following section provides examples of the particular risk management activities for each of bp's principal risks.

Strategic and commercial risks

Prices and markets

Our financial performance is impacted by fluctuating prices of oil, gas and refined products, technological change, exchange rate fluctuations, and the general macroeconomic outlook.

Our strategy is designed to accommodate a range of scenarios and be resilient to the volatility in the energy markets. This is supported through a diversified portfolio, a strong balance sheet and operating within a resilient and disciplined financial frame. We test our investment and project development costs against a range of pricing and exchange assumptions.

Accessing and progressing hydrocarbon resources and low carbon opportunities

Inability to access and progress hydrocarbon resources and low carbon opportunities could adversely affect delivery of our strategy.

For hydrocarbon resources our subsurface team is accountable for the delivery of high-value, carbon-efficient resources to deliver predictable and reliable investments today, as well as the long-term renewal of our hydrocarbon resources. Additionally, the subsurface team partners with innovation & engineering to prioritize technology development needs for the future. Our gas & low carbon energy business is accountable for the delivery of many of our low carbon opportunities through both organic and inorganic growth. This includes the development of our offshore wind, solar, onshore wind, hydrogen and carbon capture, use and storage businesses.

Major project delivery

Failure to invest in the best opportunities or deliver major projects★ successfully could adversely affect our financial performance.

We seek to manage this risk through our projects organization which exists to frame, build and execute projects across bp. The organization contains capability which includes the centre of expertise for appraisal and optimization, expertise to manage the design and build of projects and programmes, and collaboration with our businesses and enablers to ensure project objectives are met. The projects team delivers using its major projects common process which is systematically reviewed and continuously improved.

Geopolitical

The diverse locations of our business activities and operations around the world expose us to a wide range of political developments and consequent changes to the economic and operating environment. Geopolitical risk is inherent to many regions in which we operate, and heightened political or social tensions or changes in key relationships could adversely affect the group.

We seek to manage this risk at multiple levels, through:

- Identifying macro-level geopolitical trends in the geopolitical advisory council.
- Providing a clear focal point for political risk management in our regions, corporates & solutions business.
- Monitoring how geopolitical trends create risk at the country level through changes to our baseline threat assessments.

More broadly, we manage the risk on a day-to-day basis through development and maintenance of relationships with governments and stakeholders, and by being trusted partners in each country and region. In addition, we closely monitor events and implement risk mitigation plans where deemed appropriate.

Financial liquidity

External market conditions can impact our financial performance. Supply and demand and the prices achieved for our products can be affected by a wide range of factors including political developments, interest rates, consumer preferences for low carbon energy, global economic conditions, access to capital markets and the influence of OPEC+.

We seek to manage this risk through bp's diversified portfolio, our financial framework, liquidity stress testing, maintaining a significant cash buffer, regular reviews of market conditions and our planning and investment processes.

Energy markets, **page 8**
Liquidity and capital resources, **page 340**
Liquidity, financial capacity and financial, including credit, exposure, **page 77**

Joint arrangements and contractors

Varying levels of control over the standards, operations and compliance of our partners including non-operated joint ventures (NOJVs), contractors and sub-contractors could result in legal liability and reputational damage.

bp's exposure in NOJVs is primarily managed by the NOJV-facing business team in the business or entity where ownership of bp's interest in the NOJV sits.

Support, verification and assurance is provided by the NOJV solutions team, safety and operational risk assurance, ethics & compliance functional assurance and group internal audit to drive a focused, deliberate and systematic approach to the set-up and management of bp's interests and exposure in NOJVs.

Our relationships with contractors are managed through the bp procurement processes with appropriate requirements incorporated into contractual arrangements.

Cyber security

Both targeted and indiscriminate threats to the security of our digital infrastructure and those of third parties continue to evolve rapidly and are increasingly prevalent across industries worldwide.

We seek to manage this risk through a range of measures, which include cyber security standards, security protection tools, ongoing detection and monitoring of threats and testing of cyber response and recovery procedures. We collaborate with governments, law enforcement agencies and industry peers to understand and respond to new and emerging cyber threats.

We build awareness with our employees, share information on incidents with leadership for continuous learning and conduct regular exercises, including with the leadership team, to test response and recovery procedures. For further detail on cyber security disclosures see **page 360**.

Climate change and the transition to a lower carbon economy

Developments in policy, law, regulation, technology and markets, including societal and investor sentiment, related to the issue of climate change and the transition to a lower carbon economy could increase costs, reduce revenues, constrain our operations and affect our business plans and financial performance.

Risks associated with climate change and the transition to a lower carbon economy impact many elements of our strategy and, as such, these risks are managed through key business processes including setting the bp strategy and annual plan, capital allocation and investment decisions. The outputs of these key business processes are reviewed in line with the cadence of these activities. See **page 59** for more information on how transition risks are managed.

Competition

Inability to remain efficient, maintain a high-quality portfolio of assets and innovate could negatively impact delivery of our strategy in a highly competitive market.

We seek to manage this risk through our strategy, sustainability and ventures team by providing external insights on the economic, energy, market and competitive environment. Our strategy, sustainability and portfolio management teams use these insights to help define a resilient strategy for bp, including decisions related to portfolio, business development and resource allocation. The ventures team provides commercial innovation capacity that allows us to build new businesses.

Talent and capability

Inability to attract, develop and retain people with necessary skills and capabilities could negatively impact delivery of our strategy.

Our people and culture team oversees all hiring activity for bp globally, both professional hiring and early careers. They help to ensure that the right talent and people capability is in place, using local market analysis, people analytics and insights to underpin our strategic workforce planning. Talent leadership focuses on translating bp's diversity, equity and inclusion ambitions and global framework for action into a robust and diverse talent pipeline. See **page 71** for more information.

★ See glossary on **page 373**

How we manage risk and risk factors continued

Crisis management and business continuity

Failure to address an incident effectively could potentially disrupt our business or exacerbate the legal, financial or operational impacts of the crisis event.

Incidents that could potentially disrupt our business are addressed using emergency response and business continuity plans which are mandated through company-wide policies. We use internationally recognized incident command structures and for significant events business support teams and executive support teams are established to provide oversight and management. In addition, we provide a trained cadre of crisis professionals and niche expertise for deployment across the company through our mutual response team.

Insurance

Our insurance strategy could expose the group to material uninsured losses.

Our insurance team is accountable for aligning our insurance approach with bp's strategy and engaging with the businesses, integrators and enablers to determine the appropriate level of insurance. We retain in-house expertise and partner with insurance industry leaders. Our captive insurance companies are regulated within the jurisdictions in which they operate.

Safety and operational risks

Process safety, personal safety and environmental risks

Exposure to a wide range of health, safety and environmental risks could cause harm to people, the environment and our assets and result in regulatory action, legal liability, business interruption, increased costs, damage to our reputation and potentially denial of our licence to operate.

Our Operating Management System (OMS)★ helps us manage these risks and drive performance improvements. It sets out the standards and requirements which govern key risk management activities such as inspection, maintenance, testing, business continuity and crisis response planning and competency development. In addition, we conduct our drilling activity through a wells organization in order to promote a consistent approach for designing, constructing and managing wells.

Drilling and production

Challenging operational environments and other uncertainties could impact drilling and production activities.

Our production and operations business group brings together all our hydrocarbon operations and our distinctive capabilities in one place to safely deliver competitive returns. The enablers, in particular wells and production, are accountable for safety, risk, quality and operational delivery. They execute capital and operational activity and manage associated expenditure.

Security

Hostile acts such as terrorism, activism, insider acts or piracy could harm our people and disrupt our operations. We monitor for emerging threats and vulnerabilities to manage our physical and information security.

Our intelligence, security and crisis management teams provide strategic and operational risk management to our businesses through a network of regional security managers who provide front-line risk management as well as conduct assurance activities through a team independent of the business.

We continue to monitor threats globally and maintain disaster recovery, crisis and business continuity management plans.

Product quality

Supplying customers with off-specification products could damage our reputation, lead to regulatory action and legal liability, and impact our financial performance.

bp's product quality policy is aligned with our OMS and sets requirements for our business to meet specifications and applicable legal and regulatory requirements.

Compliance and control risks

Ethical misconduct and legal or regulatory non-compliance

Ethical misconduct or breaches of applicable laws or regulations could damage our reputation, result in litigation, regulatory action and penalties, adversely affect results and shareholder value, and potentially affect our licence to operate.

Our code of conduct, the foundation of who we are, is applicable to all employees and central to managing this risk. Additionally, we have various group requirements and training covering areas such as anti-bribery and corruption, anti-money laundering, competition/anti-trust law, data privacy and international trade regulations. We offer an independent confidential helpline, OpenTalk, for employees, contractors and other third parties with the option to raise concerns anonymously.

Regulation

Changes in the law and regulation could increase costs, constrain our operations and affect our strategy, business plans and financial performance.

Our businesses, integrators and enablers all seek to identify, assess and manage legal and regulatory risks relevant to bp's operations, strategy, business plans and financial performance. To support this work, we seek to develop co-operative relationships with governmental authorities in line with our code of conduct, to allow appropriate focus on areas of potential risk or uncertainty, while also protecting bp's interests within the law.

Trading non-compliance

In the normal course of business, we are subject to risks around our trading activities which could arise from shortcomings or failures in our systems, risk management methodology, internal control processes or employee conduct.

We have specific operating standards and control processes to manage these risks, including guidelines specific to trading, and seek to monitor compliance through our dedicated compliance teams. We also seek to maintain a positive and collaborative relationship with regulators and the industry at large.

Reporting

Failure to accurately report our data could lead to regulatory action, legal liability and reputational damage.

Our accounting reporting and control team provides assurance of the control environment and is accountable for building control and compliance into finance processes and digital systems.

Risk factors

The risks discussed below, separately or in combination, could have a material adverse effect on the implementation of our strategy, our business, financial performance, results of operations, cash flow, liquidity, prospects, shareholder value and returns and reputation.

Strategic and commercial risks

Prices and markets: our financial performance is impacted by fluctuating prices of oil, gas and refined products, technological change, exchange rate fluctuations, and the general macroeconomic outlook.

Oil, gas and product prices are subject to international supply and demand and margins can be volatile.

Political developments, fluctuations to the supply of either oil and gas developments or to alternative low carbon energy sources, technological change, global economic conditions, public health situations, the introduction of new carbon costs and the influence of OPEC+ can impact supply and demand and prices for our products.

Decreases in oil, gas or product prices could have an adverse effect on revenue, margins, profitability and cash flows. If these reductions are significant or for a prolonged period, we may have to write down assets and reassess the viability of certain projects, which may impact future cash flows, profit, capital expenditure★, the ability to work within our financial frame and maintain our long-term investment programme. Conversely, an increase in oil, gas and product prices may not improve margin performance as there could be increased fiscal take, cost inflation and more onerous terms for access to resources. The profitability of our refining activities can be volatile, with periodic oversupply or supply tightness in regional markets and fluctuations in demand.

Exchange rate fluctuations can create currency exposures and impact underlying costs and revenues. Crude oil prices are generally set in US dollars, while products vary in currency. Many of our major project development costs are denominated in local currencies, which may be subject to fluctuations against the US dollar.

Accessing and progressing hydrocarbon resources and low carbon opportunities: inability to access and progress hydrocarbon resources and low carbon opportunities could adversely affect delivery of our strategy.

Delivery of our strategy depends partly on our ability to progress hydrocarbon resources from our existing portfolio and access new resources in our existing core regions. Our ability to progress upstream resources and develop technologies at a level in line with our strategic outlook for hydrocarbon production could impact our future production and financial performance. Furthermore, our ability to access low carbon opportunities and the commercial terms associated with those opportunities could impact our financial performance and the pace of our transition to an integrated energy company in line with our strategy.

Major project delivery: failure to invest in the best opportunities or deliver major projects successfully could adversely affect our financial performance.

We face challenges in developing major projects, particularly in geographically and technically challenging areas. Poor investment choice, efficiency or delivery, inflation, supply chain, or operational challenges at any major project that underpins production or production growth, could adversely affect our financial performance.

Geopolitical: exposure to a range of political developments and consequent changes to the operating and regulatory environment could cause business disruption.

We operate and may seek new opportunities in countries, regions and cities where political, economic and social transition may take place.

Political instability, changes to the regulatory environment or taxation, international trade disputes and barriers to free trade, international sanctions, expropriation or nationalization of property, civil strife, strikes, insurrections, acts of terrorism, acts of war and public health situations (including the outbreak of an epidemic or pandemic) may disrupt or curtail our operations, business activities or investments.

These may in turn cause production to decline, limit our ability to pursue new opportunities, affect the recoverability of our assets and our related earnings and cash flow or cause us to incur additional costs, particularly due to the long-term nature of many of our projects and significant capital expenditure required.

Trade restrictions, international sanctions or any other actions taken by governmental authorities or other relevant persons have had and could continue to have an impact on global energy supply and demand, market volatility and the prices of oil, gas and products.

Liquidity, financial capacity and financial, including credit, exposure: failure to work within our financial framework could impact our ability to operate and result in financial loss.

Failure to accurately forecast or work within our financial framework could impact our ability to operate and result in financial loss. Trade and other receivables, including overdue receivables, may not be recovered, divestments may not be successfully completed and a substantial and unexpected cash call or funding request could disrupt our financial framework or overwhelm our ability to meet our obligations.

An event such as a significant operational incident, legal proceedings or a geopolitical event in an area where we have significant activities, could reduce our financial liquidity and our credit ratings. Credit rating downgrades could potentially increase financing costs and limit access to financing or engagement in our trading activities on acceptable terms, which could put pressure on the group's liquidity.

They could also potentially require the company to review the funding arrangements with the bp pension trustees. In the event of extended constraints on our ability to obtain financing, we could be required to reduce capital expenditure or increase asset disposals in order to provide additional liquidity.

Liquidity and capital resources, **page 340**
Financial statements – **Note 29**

Joint arrangements and contractors: varying levels of control over the standards, operations and compliance of our partners, including non-operated joint ventures (NOJV's), contractors and sub-contractors could result in legal liability and reputational damage.

★ See glossary on **page 373**

We conduct many of our activities through joint arrangements, partners or with contractors and sub-contractors where we may have limited influence and control over the performance of such activities.

Our partners and contractors are responsible for the adequacy of their resources and capabilities. If these are found to be lacking, there may be financial, reputational, operational or safety exposures for bp. Should an incident occur in an activity that bp participates in, our partners and contractors may be unable or unwilling to fully compensate us against costs we may incur on their behalf or on behalf of the arrangement. Where we do not have operational control of a joint arrangement or direct oversight of contractor activity, we may still be pursued by regulators or claimants, and may still be the focus for interest groups or media attention in the event of an incident.

Digital infrastructure, cyber security and data protection: breach or failure of our or third parties' digital infrastructure or cyber security, including loss or misuse of sensitive information could damage our operations, increase costs and damage our reputation.

The energy industry is subject to fast-evolving risks, including ransomware, from cyber threat actors, including nation states, criminals, terrorists, hacktivists and insiders. Current geopolitical factors have increased these risks. There is also growing regulation around data protection and data privacy, critical national infrastructure and the evolving opportunities and threats from artificial intelligence. A breach or failure of our or third parties' digital infrastructure – including control systems – due to breaches of our cyber defences, or those of third parties, negligence, intentional misconduct or other reasons, could seriously disrupt our operations. This could result in the loss or misuse of data or sensitive information, including employees' and customers' personal data, injury to people, disruption to our business, harm to the environment or our assets, legal or regulatory breaches, legal liability and significant costs including fines, cost of remediation or reputational consequences. Furthermore, the rapid detection of attempts to gain unauthorized access to our digital infrastructure, often through the use of sophisticated and co-ordinated means, is a challenge and any delay or failure to detect could compound these potential harms.

Cyber security disclosures, **page 360**

Climate change and the transition to a lower carbon economy: developments in policy, law, regulation, technology and markets, including societal and investor sentiment, related to the issue of climate change and the transition to a lower carbon economy could increase costs, reduce revenues, constrain our operations and affect our business plans and financial performance.

Laws, regulations, policies, obligations, government actions, social attitudes and customer preferences relating to climate change and the transition to a lower carbon economy, including the pace of change to any of these factors, and also the pace of the transition itself, could have adverse impacts on our business including on our access to and realization of competitive opportunities in any of our strategic pillars, a decline in demand for, or constraints on our ability to sell certain products, constraints on production and supply, adverse litigation and regulatory or litigation outcomes, increased costs from compliance and increased provisions for environmental and legal liabilities.

Investor preferences and sentiment are influenced by environmental, social and governance (ESG) considerations including climate change and the transition to a lower carbon economy. Changes in those preferences and sentiment could affect our access to capital markets and our attractiveness to potential investors, potentially resulting in reduced access to financing, increased financing costs and impacts upon our business plans and financial performance.

Technological improvements or innovations that support the transition to a lower carbon economy, and customer preferences or regulatory incentives that alter fuel or power choices, could impact demand for oil and gas.

Depending on the nature and speed of any such changes and our response, these changes could increase costs, reduce our profitability, reduce demand for certain products, limit our access to new opportunities, require us to write down certain assets or curtail or cease certain operations, and affect investor sentiment, our access to capital markets, our competitiveness and financial performance.

Policy, legal, regulatory, technological and market developments related to climate change could also affect future price assumptions used in the assessment of recoverability of asset carrying values including goodwill, the judgement as to whether there is continued intent to develop exploration and appraisal intangible assets, the timing of decommissioning of assets and the useful economic lives of assets used for the calculation of depreciation and amortization.

Climate-related financial disclosures, **page 55** and Financial statements **– Note 1 and Note 33**

Competition: inability to remain efficient, maintain a high-quality portfolio of assets and innovate could negatively impact delivery of our strategy in a highly competitive market.

Our strategic progress and performance could be impeded if we are unable to control our development and operating costs and margins, if we fail to scale our businesses at pace, or to sustain, develop and operate a high-quality portfolio of assets efficiently. Furthermore, as we transition from an international oil company to an integrated energy company, we face an expanded and rapidly evolving range of competitors in the sectors in which we operate.

We could be adversely affected if competitors offer superior terms for access rights or licences, or if our innovation in areas such as new low carbon technologies, digital, customer offer, exploration, production, refining, manufacturing or renewable energy lags behind those of our competitors. Our performance could also be negatively impacted if we fail to protect our intellectual property.

Talent and capability: inability to attract, develop and retain people with necessary skills and capabilities could negatively impact delivery of our strategy.

The sectors in which we operate face increasing challenges to attract and retain diverse, skilled and capable talent. An inability to successfully recruit, develop and retain core skills and capabilities and to reskill existing talent could negatively impact delivery of our strategy.

Crisis management and business continuity: failure to address an incident effectively could potentially disrupt our business.

Our reputation and business activities could be negatively impacted if we do not respond, or are perceived not to respond, in an appropriate manner to any major crisis.

Insurance: our insurance strategy could expose the group to material uninsured losses.

bp insures in situations where this is legally and contractually required. Some risks are insured with third parties and reinsured by group insurance companies. Uninsured losses could have a material adverse effect on our financial position, particularly if they arise at a time when we are facing material costs as a result of a significant operational event which could put pressure on our liquidity and cash flows.

Safety and operational risks

Process safety, personal safety, and environmental risks: exposure to a wide range of health, safety and environmental risks could cause harm to people, the environment and our assets and result in regulatory action, legal liability, business interruption, increased costs, damage to our reputation and potentially denial of our licence to operate.

Technical integrity failure, natural disasters, extreme weather or a change in its frequency or severity, human error and other adverse events or conditions, including breach of digital security, could lead to loss of containment of hazardous materials, including hydrocarbons★. This could also lead to fires, explosions or other personal and process safety incidents when drilling wells, constructing and operating facilities; in addition to activities associated with transportation by road, sea or pipeline. There can be no certainty that our OMS or other policies and procedures will adequately identify all process safety, personal safety and environmental risks or that all our operating activities, including acquired businesses, will be conducted in conformance with these systems.

Safety, **page 69**

Such events or conditions or inability to provide safe environments for our workforce and the public while at our facilities, premises or during transportation, could lead to injuries, loss of life or environmental damage. As a result, we could face regulatory action and legal liability, including penalties and remediation obligations, increased costs and potentially denial of our licence to operate. Our activities are sometimes conducted in hazardous, remote or environmentally sensitive locations, where the consequences of such events or conditions could be greater than in other locations.

Drilling and production: challenging operational environments and other uncertainties could impact drilling and production activities.

Our activities require high levels of investment and are sometimes conducted in challenging environments such as those prone to natural disasters and extreme weather, which heightens the risks of technical integrity failure. The physical characteristics of an oil or natural gas field, and cost of drilling, completing or operating wells are often uncertain. We may be required to curtail, delay or cancel drilling operations or stop production because of a variety of factors, including unexpected drilling conditions, pressure or irregularities in geological formations, equipment failures or accidents, adverse weather conditions and compliance with governmental requirements.

Security: hostile acts against our employees and activities could cause harm to people and disrupt our operations.

Acts of terrorism, piracy, sabotage, activism and similar activities directed against our operations and facilities, pipelines, transportation or digital infrastructure could cause harm to people and severely disrupt operations. Our activities could also be severely affected by conflict, civil strife or political unrest.

Product quality: supplying customers with off-specification products could damage our reputation, lead to regulatory action and legal liability, and impact our financial performance.

Failure to meet product quality specifications could cause harm to people and the environment, damage our reputation, result in regulatory action and legal liability, and impact financial performance.

Compliance and control risks

Ethical misconduct and non-compliance: ethical misconduct or breaches of applicable laws by our businesses or our employees could be damaging to our reputation, and could result in litigation, regulatory action and penalties.

Incidents of ethical misconduct or non-compliance with applicable laws and regulations, including anti-bribery and corruption, competition and antitrust, data privacy, and anti-fraud laws, trade restrictions or other sanctions, could damage our reputation, and result in litigation, regulatory action, penalties and potentially affect our licence to operate. In relation to trade restrictions or other sanctions, current geopolitical factors have increased these risks.

Regulation: changes in the law and regulation could increase costs, constrain our operations and affect our strategy, business plans and financial performance.

Our businesses and operations are subject to the laws and regulations applicable in each country, state or other regional or local area in which they occur. These laws and regulations result in an often complex, uncertain and changing legal and regulatory environment for our global businesses and operations. Changes in laws or regulations, including how they are interpreted and enforced, can and do impact all aspects of our business.

Royalties and taxes, particularly those applied to our hydrocarbon activities, tend to be high compared with those imposed on similar commercial activities. In certain jurisdictions there is also a degree of uncertainty relating to tax law interpretation and changes.

Governments may change their fiscal and regulatory frameworks in response to public pressure on finances or for other policy reasons, resulting in increased amounts payable to them or their agencies.

Changes in law or regulation could increase the compliance and litigation risk and costs, reduce our profitability, reduce demand for or constrain our ability to sell certain products, limit our access to new opportunities, require us to divest or write down certain assets or curtail or cease certain operations, or affect the adequacy of our provisions for pensions, tax, decommissioning, environmental and legal liabilities. Changes in laws or regulations could result in the nationalization, expropriation, cancellation, non-renewal or renegotiation of our interests, assets and related rights. Potential changes to pension or financial market regulation could also impact funding requirements of the group. Following the Gulf of Mexico oil spill, we may be subjected to a higher level of fines or penalties imposed in relation to any alleged breaches of laws or regulations, which could result in increased costs.

Regulation of the group's business, **pages 353-357**

Trading and treasury trading activities: ineffective oversight of trading and treasury trading activities could lead to business disruption, financial loss, regulatory intervention or damage to our reputation and affect our permissions to trade.

We are subject to operational risk around our trading and treasury trading activities in financial and commodity markets, some of which are regulated. Failure to process, manage and monitor a large number of complex transactions across many markets and currencies while complying with all regulatory requirements could hinder profitable trading opportunities. There is a risk that a single trader or a group of traders could act outside of our delegations and controls, leading to regulatory intervention and resulting in financial loss, fines and potentially damaging our reputation, and could affect our permissions to trade.

Financial statements – **Note 29**

Reporting: failure to accurately report our data could lead to regulatory action, legal liability and reputational damage.

External reporting of financial and non-financial data, including reserves estimates, relies on the integrity of the control environment, our systems and people operating them. Failure to report data accurately and in compliance with applicable standards could result in regulatory action, legal liability and damage to our reputation.

★ See glossary on **page 373**

Compliance information

bp non-financial and sustainability information statement

Produced in compliance with Sections 414CA and 414CB of the Companies Act. Information incorporated by cross reference.

Requirement	Relevant policies and standards	Information related to policies and any due diligence processes
a Environmental matters	– Net zero aims – TCFD – Sustainability frame – Biodiversity position (online)	• Climate-related financial disclosures – **pages 55-68** • Caring for our planet aims – **page 54** • Our Operating Management System★ (OMS) – **page 69** • Decision making by the board – **page 89**
b Employees	– Reinvent bp guidelines – bp values and code of conduct (online)	• Our people – **page 70** • Safety – **page 69** • Our values ('Who we are') and code of conduct – **page 72** • Employee engagement ('Pulse annual' employee survey) – **page 71** • How the board engaged with stakeholders (workforce) – **page 92**
c Social matters	– Sustainability frame	• Our Operating Management System (OMS) – **page 69** • Improving people's lives – **page 53** • Decision making by the board – **page 89**
d Respect for human rights	– Business and human rights policy (online) – Modern slavery statement (online) – Labour rights and modern slavery principles (online) – Code of conduct (online)	• Improving people's lives – **page 53** • Human rights – **page 53** • Our values and code of conduct – **page 72**
e Anti-corruption and anti-bribery	– Anti-bribery and corruption policy – Code of conduct (online)	• Ethics and compliance – **page 72** • Our partners in joint arrangements – **page 70**
Description of principal risks relating to matters (a-e above)		• How we manage risk – **pages 73-76** • Risk factors – **pages 77-79** • TCFD (climate-related risk management) – **page 58**
	Relevant information	
Business model description	– Business model – **pages 16-17**	
Description of non-financial KPIs	– Measuring our progress – **pages 24, 26-27**	

TCFD index table[a]

Our TCFD disclosures can be found on the following pages.

TCFD Recommendation	TCFD Recommended Disclosure	Where reported
Governance Disclose the organization's governance around climate-related issues and opportunities.	a Describe the board's oversight of climate-related risks and opportunities.	• **Pages 55-56**
	b Describe the management's role in assessing and managing climate-related risks and opportunities.	• **Pages 56-58**
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy and financial planning where such information is material.	a Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	• Pursuing a strategy that is consistent with the Paris goals, **page 14** • Strategy, **page 12** • Risk factors, **page 77**
	b Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	• Risk factors, **page 77** – description of principal risks • Strategy, **page 12**
	c Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	• Strategy, **page 12** • Pursuing a strategy that is consistent with the Paris goals, **page 14**
Risk management Disclose how the organization identifies, assesses and manages climate-related risks.	a Describe the organization's processes for identifying and assessing climate-related risks.	• Risk management, **page 58** • How we manage risk, **page 73** • Risk factors, **page 77**
	b Describe the organization's processes for managing climate-related risks.	• Risk management, **page 58** • How we manage risk, **page 73**
	c Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	• Risk management, **page 58** • How we manage risk, **page 73** • Risk factors – **page 77**
Metrics and targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	• Our strategic pillars and metrics, **page 13** • Our group-wide principal metrics and relevant targets, **page 68**
	b Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.	• GHG emissions data, **page 51**
	c Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	• Our net zero targets and aims at a glance, **pages 48-49**

a We consider the information in our TCFD disclosures, taken together with our climate-related non-financial KPIs on **pages 26-27** of this report, to be compliant with the disclosure requirements of Section 414CB of the Companies Act, as amended by the UK CFD Regulations.

Section 172 statement

In accordance with the requirements of Section 172 of the Companies Act 2006 (the Act), the directors consider that, during the financial year ended 31 December 2023, they have acted in a way that they consider, in good faith, would most likely promote the success of the company for the benefit of its members as a whole, having regard to the likely consequences of any decision in the long term and the broader interests of other stakeholders, as required by the Act.

For more information in support of this statement, see decision making by the board, **page 89,** board activities, **page 90-91** and our stakeholders, **page 92-93**

The Strategic report was approved by the board and signed on its behalf by Ben J.S. Mathews, company secretary, on 8 March 2024.

Corporate governance

Tangguh renewable natural gas plant, Indonesia

Introduction from the chair

"Throughout the year, the board has extensively engaged with stakeholders – and with shareholders, in particular."

Dear fellow shareholders,

Each year seems to bring more challenges for company boards – a more demanding operating environment in the context of geopolitical shifts, technology advancements and of course, the ongoing complexity of the energy transition. Our corporate governance framework was established in 2020, recognising the need for it to be both dynamic and flexible in its application to a range of different situations. Looking back on 2023, it's safe to say that it has served us well.

The framework provides a clear mandate and defines responsibilities for the board's main committees. It has enabled the board to apply its time to the most important areas requiring its focus and expertise.

In 2023 these included responding to an ever-changing macro environment and the appointment of a new chief executive officer (CEO) and chief financial officer (CFO). Underpinned by this framework, throughout the year, the board has extensively engaged with stakeholders – and with shareholders, in particular. This engagement has been particularly valuable and has informed the board's discussions and decision making.

Executive director succession

bp's succession plans are routinely reviewed by the board's people and governance committee and we were able to activate those plans swiftly last year.

The board appointed an interim CEO within hours of the former CEO's resignation in September, implementing an emergency succession process for this most important executive role. Our governance framework provided a similarly clear structure for us to progress through to the permanent appointments of Murray Auchincloss (previously CFO) as CEO and, in turn, Kate Thomson as CFO. This was all achieved within five months of the former CEO's departure. Although conducted at pace, the selection process was robust, competitive and resulted in full agreement among the board on the best candidates for these roles. See **page 95** for more details.

Murray cares deeply about bp and its people. He brings in-depth understanding of the opportunities and challenges in the energy transition and he has demonstrated leadership that is focused on teamwork, performance and delivery. Kate's appointment recognizes her detailed understanding of bp and the energy and finance sectors, combined with deep technical expertise.

Throughout this period of change, the board has maintained a constructive and productive relationship with the leadership team.

Focus on culture

As a board, we are conscious of our responsibility to assess and monitor bp's culture and to seek assurance from the leadership team that corrective action is being taken where practices or behaviours are not aligned with the company's 'Who we are' culture frame. With this in mind, a dedicated committee of the board was established in 2023 on an interim basis with a focus on psychological safety and speaking up. The committee's work was supported by data-led analysis and workforce engagement sessions.

The committee has served us well and its activities have provided a fresh foundation for the people and governance committee to now assume its responsibilities supporting the board in its assessment and monitoring of culture.

Purposeful engagement

Among the most rewarding experiences in 2023 was to see first-hand some of the work bp is doing around the world, particularly meeting the people delivering our strategy on the ground.

Our safety and sustainability committee travelled to Indonesia and visited bp's liquefied natural gas facility at Tangguh, seeing for themselves the positive effect of our operations on the local community. Members of the board also went to the US, visiting operations in the Permian Basin and the Thunder Horse platform in the Gulf of Mexico, and in the UK they met our internal audit and finance teams in Sunbury and the trading and shipping teams in London.

I also enjoyed meetings with people across bp, learning more about the business and the challenges being faced – and these views have been reflected in our board conversations.

This experience was complemented by our bespoke workforce engagement programme which allows my board colleagues to participate in small groups focusing on set themes. Having the themes aligned with the board's agenda for the year gave us a good insight into the views and concerns of a broad range of the bp workforce and further informed our discussions and the decisions we have taken.

Board evolution

Paula Rosput Reynolds and Sir John Sawers will both shortly reach the end of their nine years' tenure on our board and will step down at the end of our annual general meeting in April 2024. I thank them for their valued service to bp.

I am pleased that Amanda Blanc will take on the role of senior independent director and, for an interim period, Tushar Morzaria will become chair of the remuneration committee. Having undertaken a thorough assessment of time commitment (see **page 133**) the board is satisfied that they each have sufficient capacity to dedicate the time necessary for these roles.

The board continues to evolve, and I am pleased to say that with over 50% female and over 20% ethnic minority representation we exceed both the targets set out in the new UK Listing Rules and the 2027 Parker Review targets relating to ethnic diversity on UK boards. There is, of course, always more to do and I thank my board colleagues for their dedicated service in 2023 and their ongoing commitment to your company.

Closing thanks

I would like to close by thanking the bp teams who have continued to operate bp safely and effectively and its leadership for their focus. And finally, I would like to thank you, fellow shareholders, for your continued confidence in bp.

Helge Lund
Chair
8 March 2024

Board of directors

As at 8 March 2024

Board at a glance

Board gender diversity

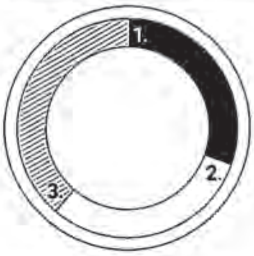
Female

March 2024	7
March 2023	6

Male

March 2024	6
March 2023	7

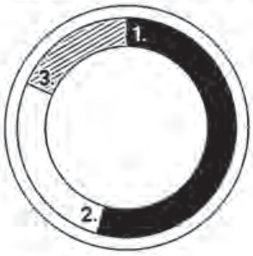
Board nationality



	March 2024	March 2023
1. UK	4	3
2. US	4	4
3. Non-UK/US[a]	5	6

a Norway, India, Canada, Germany

Non-executive directors' tenure



	March 2024	March 2023
1. 1-3 years	6	6
2. 4-6 years	3	3
3. 7-9 years	2	2

Director biographies

Further biographical details for each director are available online at **bp.com/whoweare**

Helge Lund
Chair

P

Appointed Board: 26 July 2018; chair: 1 January 2019

Nationality Norwegian

External appointments

- Chair of Novo Nordisk AS.
- Operating advisor to Clayton Dubilier & Rice.
- Member of the Board of Trustees of the International Crisis Group.
- Member of the European Round Table for Industry.
- Mentor at Chair Mentors International.

Significant past appointments

- Chief executive of BG Group.
- President and chief executive officer of Equinor and Aker Kvaerner.
- Executive of Aker RGI and Hafslund Nycomed.
- Non-executive director of Schlumberger and Nokia.
- Member of the United Nations Secretary-General's Advisory Group on Sustainable Energy.
- Consultant at McKinsey & Company.
- Parliamentary group political advisor of the Conservative party, Norway.

Key skills and experience

- Distinguished career as a leader in the energy sector with deep industry knowledge and global business experience.
- Helge drives cohesion, constructive challenge and oversight of bp's strategy and net zero ambition through forward-looking and innovative leadership of the board.

Murray Auchincloss
Chief executive officer (CEO)

Appointed Executive director: 1 July 2020; chief executive officer: 17 January 2024

Nationality Canadian

External appointments

- Board member of Aker BP ASA.
- Main committee member of The 100 Group.

Significant past appointments

- Joined Amoco in 1992 and then bp when the two companies merged in 1998.
- Senior roles in finance and management at bp, across tax, business development, mergers and acquisitions and performance management.
- Chief of staff to bp chief executive officer.
- CFO BP p.l.c.
- Interim CEO BP p.l.c.

Key skills and experience

- Murray drives bp's strategy to transform bp from an international oil company to an integrated energy company and has extensive experience and knowledge of the energy sector.
- Provides deep insight into bp's assets and businesses through broad experience across the group, extensive financial expertise and experience.

Kate Thomson
Chief financial officer (CFO)

Appointed 2 February 2024

Nationality British

External appointments

- Board member of Aker BP ASA.
- Member of the European Round Table for CFOs.

Significant past appointments

- Joined bp in 2004.
- Group treasurer, BP p.l.c.
- Group head of tax, BP p.l.c.
- SVP finance for production & operations, BP p.l.c.
- Interim CFO BP p.l.c.

Key skills and experience

- Kate has a detailed understanding and experience of the energy sector.
- Provides deep technical insight from her broad experience of leading teams across the group in tax, treasury and commercial finance.

Committee membership key

- ■ Chair
- Ⓐ Audit committee
- Ⓢ Safety and sustainability committee
- Ⓡ Remuneration committee
- Ⓟ People and governance committee

★ See glossary on **page 373**

Paula Rosput Reynolds
Senior independent director

R A P

Appointed Board: 14 May 2015; senior independent director: 27 May 2020

Nationality American

External appointments

- Director and chair of National Grid plc.
- Non-executive director of General Electric Company.
- Non-executive director of Linde plc.

Significant past appointments

- Began career at Pacific Gas & Electric Corp in 1979 and spent over 25 years in the energy industry.
- CEO Duke Energy Power Services.
- Chair, president and CEO of AGL Resources.
- Chair and CEO of Safeco Corporation.
- Vice-chair and chief restructuring officer of AIG.
- Non-executive director of TransCanada Corporation; CBRE Group, Inc; BAE Systems PLC; Anadarko Petroleum; Delta Air Lines; and Coca Cola Enterprises.
- Chair of the Seattle Cancer Care Alliance.

Key skills and experience

- Long career leading international and US companies in energy and financial sectors.
- Deep strategic and regulatory experience and broad business expertise, including leading through multiple restructuring processes and mergers.

Tushar Morzaria
Independent non-executive director

A R

Appointed 1 September 2020

Nationality British

External appointments

- Non-executive director of Legal & General Group plc.
- Non-executive chairman of EMEA Investment Banking, Barclays.

Significant past appointments

- Group finance director and member of the board of Barclays PLC 2013 to 2022.
- Various senior roles at JP Morgan, including CFO of its Corporate & Investment Bank.

Key skills and experience

- Over 25 years of strategic financial management, investment banking, operational and regulatory relations experience.
- Breadth of knowledge and insight into financial, tax, treasury, investor relations and strategic matters.
- Strong experience in delivering corporate change programmes while maintaining a focus on performance.

Melody Meyer
Independent non-executive director

S R

Appointed 17 May 2017

Nationality American

External appointments

- Non-executive director of AbbVie Inc.
- President of Melody Meyer Energy LLC.
- Director of the National Bureau of Asian Research.
- Trustee of Trinity University.

Significant past appointments

- President of Chevron Asia Pacific E&P until 2016 after 37 years of service in key leadership roles in global exploration and production.
- Executive sponsor of the Chevron Women's Network until 2016.

Key skills and experience

- Deep understanding of the factors influencing safe, efficient and commercially high-performing projects in a global organization.
- Expertise in the execution of major capital projects, technology, R&D, creation of businesses in new countries, strategic business planning, merger integration, leading change, and safe and reliable operations.

Dame Amanda Blanc
Independent non-executive director

R P

Appointed 1 September 2022

Nationality British

External appointments

- CEO of Aviva plc.
- Co-chair of the UK Transition Taskforce.
- HM Treasury's Women in Finance Champion.
- Principal member of Glasgow Financial Alliance for Net Zero (GFANZ).
- Member of the Association of British Insurers Board.

Significant past appointments

- Began career as a graduate at Commercial Union, one of Aviva's ancestor companies, and held several senior executive roles across the insurance industry.
- Group CEO at AXA UK, PPP & Ireland.
- CEO of Europe, Middle East, Africa & Global Banking at Zurich Insurance Group.
- Leadership positions at Groupama Insurance Company and Commercial Union.
- Member of the Prime Minister's Business Council.

Key skills and experience

- Experience leading insurance businesses in the UK and across Europe and developing the standard for private sector climate transition plans.
- Wide-ranging board, industry and regulatory experience.

Pamela Daley
Independent non-executive director

A R

Appointed 26 July 2018

Nationality American

External appointments

- Director of BlackRock, Inc.
- Director of SecureWorks, Inc.

Significant past appointments

- Various senior executive roles at General Electric Company (GE), including senior vice president of business development 2004 to 2013.
- Senior vice president and senior advisor to the chair at GE in 2013.
- Director of BG Group plc 2014 to 2016.
- Director of Patheon N.V. 2016 to 2017.
- Partner at Morgan, Lewis & Bockius.

Key skills and experience

- Qualified lawyer with a wealth of global business and strategic experience.
- Board-level experience of the UK oil and gas industry and executive experience in highly regulated industries.

Hina Nagarajan
Independent non-executive director

A

Appointed 1 March 2023

Nationality Indian

External appointments

- Managing director and CEO of United Spirits Limited (Diageo India).
- Member of the global executive committee of Diageo plc.
- Board member of The Advertising Standards Council of India.
- Director and co-chair of International Spirits and Wines Association of India.

Significant past appointments

- Leadership positions at Reckitt, Mary Kay India and Nestlé India with over 30 years in the fast-moving consumer goods (FMCG) industry.
- Non-executive director at two companies which were publicly quoted at the time: Guinness Ghana Breweries Plc and Seychelles Breweries Limited.

Key skills and experience

- Deep and wide-ranging experience in customer-focused FMCG businesses in complex emerging markets.
- Extensive experience in assessing climate-related risks and opportunities from oversight of sustainability initiatives.

Satish Pai
Independent non-executive director

Ⓢ

Appointed 1 March 2023

Nationality Indian

External appointments

- Managing director of Hindalco Industries Limited.
- Director of Novelis Inc.
- Non-executive director, Aditya Birla Management Corporation Ltd.
- Director, Indian Institute of Metals.

Significant past appointments

- Executive vice president, worldwide operations and other engineering and management roles at Schlumberger across 28 years of service.

Key skills and experience

- Accomplished and transformative executive with operations and technology experience in the resources and energy industries.
- Strong digital capability and experience.

Karen Richardson
Independent non-executive director

Ⓐ

Appointed 1 January 2021

Nationality American

External appointments

- Partner at Artius Capital Partners.
- Non-executive director (lead independent director) of Exponent, Inc.

Significant past appointments

- Senior operating roles in the public and private technology sector.
- Vice president of sales at Netscape Communications Corporation 1995 to 1998.
- Senior executive roles at E.piphany from 1998, including CEO 2003 to 2006.
- Non-executive director of BT plc 2011 to 2018.
- Director of Worldpay Inc. (Worldpay Group plc) 2016 to 2019.
- Chair of Origin Materials Inc. 2021 to 2024.

Key skills and experience

- Extensive knowledge of digital, technology, cyber and IT security matters.
- 30 years' technology industry experience including working with innovative Silicon Valley companies.

Sir John Sawers
Independent non-executive director

ⓈⓅ

Appointed 14 May 2015

Nationality British

External appointments

- Visiting professor at King's College London.
- Senior advisor at Chatham House.
- Senior fellow at the Royal United Services Institute.
- Global advisor at the Council on Foreign Relations.
- Governor of the Ditchley Foundation.
- Director of the Bilderberg Association, UK.
- Executive chair of Newbridge Advisory Limited.

Significant past appointments

- 36 years in UK public services, working on foreign policy, international security and intelligence.
- Chief of the Secret Intelligence Service, MI6, 2009 to 2014.
- Part of the Diplomatic Service; represented the British government around the world and led negotiations at the United Nations, European Union and G8.
- Chair and general partner of Macro Advisory Partners February 2015 to May 2019.
- Set up own firm, Newbridge Advisory.

Key skills and experience

- Deep experience of international political and commercial matters.
- Expertise in assisting the board to navigate geopolitical issues.

Dr Johannes Teyssen
Independent non-executive director

Ⓢ

Appointed 1 January 2021

Nationality German

External appointments

- Senior advisor to Kohlberg Kravis Roberts.
- President of Alpiq Holding Ltd.
- Senior advisor to Viridor Limited.

Significant past appointments

- Several leadership positions at VEBA AG (merged with VIAG AG in 2000 and renamed to E.ON AG and later to E.ON SE).
- Member of the board of management of the E.ON Group's central management company in Munich in 2001 and E.ON SE in 2004.
- Vice-chair of E.ON SE, 2008 and CEO, 2010.
- President of Eurelectric 2013 to 2015.
- Vice-chair of the World Energy Council, responsible for Europe, 2006 to 2012.
- Member of the supervisory board of Salzgitter AG 2006 to 2016 and Deutsche Bank AG 2008 to 2018.

Key skills and experience

- Extensive experience and deep knowledge of the energy sector and its continuing transformation.
- Considerable knowledge and experience of climate-related risk oversight.

Ben J S Mathews
Company secretary

Appointed 7 May 2019

Role and career summary

Ben joined bp as company secretary in May 2019. He is the co-chair of the Corporate Governance Council of the Conference Board and is a Fellow of the Chartered Governance Institute. Ben serves on the executive committee of the Association of General Counsel and Company Secretaries of the FTSE 100 (GC100), having previously served as its chair for four years.

Ben's global company secretary team is responsible for providing independent advice and support to the plc board and the boards of all other legal entities in the bp group. The team's vision is to enhance stakeholder value through dynamic corporate governance.

Former appointments include Group Company Secretary of HSBC Holdings plc and Rio Tinto.

Board attendance in 2023

	Eight scheduled meetings	Five ad hoc meetings
Non-executive directors		
Helge Lund[a]	7/8	5/5
Dame Amanda Blanc[b]	8/8	4/5
Pamela Daley[b]	8/8	4/5
Melody Meyer	8/8	5/5
Tushar Morzaria[b]	8/8	4/5
Hina Nagarajan[bc]	7/7	3/4
Satish Pai[bc]	7/7	3/4
Paula Rosput Reynolds	8/8	5/5
Karen Richardson[b]	8/8	3/5
Sir John Sawers	8/8	5/5
Dr Johannes Teyssen[d]	7/8	5/5
Executive directors		
Murray Auchincloss[b]	8/8	4/5
Bernard Looney[e]	5/5	3/3

a Helge was unable to attend the scheduled meeting in May due to an important commitment for and on behalf of bp. He received accompanying material and had the opportunity to provide comments to the board.

b In respect of the five ad hoc meetings which took place outside the scheduled board calendar, which is agreed far in advance Dame Amanda, Pamela and Karen were unable to attend the meeting in December, and Tushar was unable to attend the meeting in June, due to prior commitments which the board was notified of. Karen was unable to attend the meeting in June due to an important commitment for and on behalf of bp. They received accompanying material and had the opportunity to provide comments to the board. Murray was recused from attending the meeting in September that considered the appointment of the interim CEO, while Hina and Satish were unable to make this meeting due to the short notice at which it was convened.

c Hina and Satish each joined the board effective 1 March 2023 and attended all scheduled meetings held after their appointments.

d Johannes was unable to attend the scheduled meeting in October due to a prior commitment which the board was notified of. He received accompanying material and had the opportunity to provide comments to the board.

e Bernard ceased to be a member of the board effective 12 September 2023 and had attended all meetings prior to this date.

Of the 13 board meetings held in 2023, eight were scheduled as part of the routine board calendar and five were scheduled on an ad hoc basis. Four scheduled meetings covered a full agenda across strategy, performance, people and governance. Two scheduled board meetings were focused on the quarterly results and two meetings reviewed a full agenda and the quarterly results.

★ See glossary on **page 373**

Leadership team
As at 8 March 2024

Integrators
From left to right

William Lin

EVP regions, corporates & solutions

Leadership team tenure Appointed on 1 July 2020

Nationality American

Other board memberships

William is a non-executive director of Pan American Energy Group, the largest independent energy company in Argentina. In addition, he is a member of the supervisory board for Corbion, a Dutch-listed global food ingredients and biochemicals company. He also chairs Corbion's Sustainability & Safety Committee and is a member of the Audit Committee.

Career summary

William served as chief operating officer, upstream regions before joining the leadership team. He has worked in bp for 28 years, and has spent most of his career working abroad in different countries. His previous senior roles include vice president – gas development and operations for Egypt, regional president for Asia Pacific and head of the group chief executive's office. William managed the successful completion, start-up and operation of the Tangguh LNG facility during his time in Indonesia.

Carol Howle

EVP trading & shipping

Leadership team tenure Appointed on 1 July 2020

Nationality British

Other board memberships

None

Career summary

Before taking on her current role, Carol ran bp shipping and was the chief operating officer for integrated supply and trading, oil. She has more than 20 years' experience in the energy industry, many in integrated supply and trading. Her previous roles include chief operating officer for natural gas liquids, regional leader of global oil Europe and finance. Carol also served as the head of the group chief executive's office.

Giulia Chierchia

EVP strategy, sustainability & ventures

Leadership team tenure Appointed on 1 July 2020

Nationality Belgian and Italian

Other board memberships

Giulia is a non-executive director of Schneider Electric.

Career summary

Giulia joined bp in April 2020 as EVP strategy, sustainability & ventures. In her role, Giulia drives bp's strategy and sustainability agenda and embeds the group's ethics and compliance within the organization. She oversees bp's venturing investments business, which supports opportunities to enable bp's transition and net zero ambition. Giulia also serves as a Non-Executive Director of the Board for Schneider Electric.

Prior to bp, she worked for McKinsey, where she was a senior partner. She led the global downstream oil and gas practice and was a key member of the chemicals and electricity, power and natural gas practices. She has more than 10 years' experience in the energy sector, including helping companies shape their strategies for the energy transition.

Leigh-Ann Russell

EVP innovation & engineering

Leadership team tenure Appointed on 1 March 2022

Nationality British

Other board memberships

Leigh-Ann is a non-executive director of Hill & Smith Holdings.

Career summary

Leigh-Ann was previously bp's SVP procurement, accountable for a supply chain of around $30 billion of global spend. Prior to this, she was global head of upstream supply chain and VP of technical functions and performance in the global wells organization. Leigh-Ann holds a degree in mechanical engineering and is a Chartered Petroleum Engineer. She is a Fellow of the Royal Academy of Engineering, a Fellow of the Energy Institute and a Fellow of the Royal Society of Edinburgh. In 2022, Leigh-Ann was conferred the honorary title of Professor of Practice of Queen's University Belfast.

Business groups

From left to right

Gordon Birrell

EVP production & operations

Leadership team tenure Appointed on 1 July 2020

Gordon previously served on bp's executive team starting on 12 February 2020.

Nationality British

Other board memberships

Gordon is a non-executive director of Azule Energy Holdings Ltd.

Career summary

Before being appointed to his new role, Gordon was chief operating officer for production, transformation and carbon. In his bp career, Gordon has spent time in various leadership, technical, safety and operational risk roles, including four years as bp president Azerbaijan, Georgia and Türkiye. Gordon is a Fellow of the Royal Academy of Engineering.

Anja Dotzenrath

EVP gas & low carbon energy

Leadership team tenure Appointed on 1 March 2022

Nationality German

Other board memberships

None

Career summary

Anja has more than 30 years of experience in the global energy industry. Prior to her appointment, Anja was chief executive officer of RWE Renewables, one of the world's leading renewables businesses. She previously held a broad range of leadership roles in E.ON, including chief executive officer of E.ON Climate & Renewables. Anja held a number of senior roles in management consultancy over 15 years before joining E.ON, with a focus on energy and the industrial sector.

Emma Delaney

EVP customers & products

Leadership team tenure Appointed on 1 July 2020

Emma previously served on bp's executive team starting on 1 April 2020

Nationality Irish

Other board memberships

None

Career summary

Emma has spent 28 years working in bp, both in the upstream and the downstream. Prior to joining bp's executive team on 1 April 2020, she was regional president for West Africa. She has held a variety of senior roles including upstream chief financial officer for Asia Pacific and head of business development for gas value chains. In downstream she held roles in retail and commercial fuels and planning.

Enablers

From left to right

Kerry Dryburgh

EVP people & culture

Leadership team tenure Appointed on 1 July 2020

Nationality British

Other board memberships

None

Career summary

Kerry leads people & culture at bp.

Kerry previously headed HR for bp's upstream business while also serving as group chief talent officer. She has held a series of senior HR positions across the company, including running HR for bp's shipping, integrated supply and trading, and corporate functions. She brings vast experience from other sectors in Europe and Asia, having worked at both BT and Honeywell.

Mike Sosso

EVP legal

Leadership team tenure Appointed on 1 January 2024

Nationality American

Other board memberships

None

Career summary

Mike took on the role of EVP legal in January 2024. In his role, Mike is accountable for leading the legal function and executing the legal strategy for the group. Mike joined bp in 2011 and has held a number of leadership positions across legal. He also previously held the role of VP ethics and compliance. Prior to joining bp, Mike practised law in the Washington, DC office of Skadden, Arps, Slate, Meagher & Flom.

★ See glossary on **page 373**

Governance framework

Authority for decision making is formally delegated by the board under a clearly defined governance framework and flows through the company to ensure an appropriate and consistent approach. Certain matters are reserved for the board as a whole, with specific responsibilities delegated to committees. All this helps the company to effectively and efficiently deliver against the strategy set by the board.

There is a formal division of responsibilities between the board and leadership team. The board is responsible for setting and overseeing the strategy, with the leadership team responsible for its implementation and delivery. Board role profiles are available at **bp.com/governance**.

Day-to-day management of the business is delegated to the chief executive officer (CEO) who is supported by the bp leadership team. The framework is supported by board and committee terms of reference which are reviewed annually and available at **bp.com/governance**.

Board of directors

The board is responsible for setting bp's strategy, purpose and values and monitoring its culture. In its role to promote the long-term success of the company, the board oversees the frameworks and systems for effective risk management and internal control.

Key decisions made by the board, see **page 89**. Further detail on how the board discharges its responsibilities, see **pages 90-93**. For director biographies, see **pages 83-85**.

People and governance committee
See **page 94**

Audit committee
See **page 98**

CEO succession committee
See **page 97**

Safety and sustainability committee
See **page 103**

'Who we are' oversight committee
See **page 97**

Remuneration committee
See **page 105**

The board and committees delegate to the executive directors, who are supported by the leadership team in the day-to-day management of the business[a].

For leadership team biographies, see **pages 86-87**

Role descriptions

Executive directors

Chief executive officer: as a member of the board and the bp leadership team, Murray Auchincloss contributes to the development of strategy and has responsibility, delegated from the board, for execution of the strategy and management of the business through the bp leadership team.

Chief financial officer: as a member of both the board and the bp leadership team, Kate Thomson provides financial leadership for the business and supports it in the implementation of the strategy.

Non-executive directors

Chair: Helge Lund leads the board and is responsible for its overall effectiveness.

Senior independent director: Paula Rosput Reynolds supports the chair and acts as an intermediary for other directors.

Independent non-executive directors: Provide support and constructive challenge to the executive management.

Company secretary

Ben Mathews advises the board on corporate governance matters, compliance with board procedures and regulatory requirements.

For the company secretary's biography, see **page 85**

a The leadership team discharges its responsibilities through a number of management committees, including, among others, the group financial risk committee, group operations risk committee and group ethics and compliance committee. The geopolitical advisory council and digital advisory council are collaborative forums for both executive and non-executive directors to benefit from insights and discussions.

Decision making by the board

Set out below are examples of key decisions taken by the board during 2023, which demonstrate how Section 172 stakeholder considerations and impacts have been taken into account as part of board discussions and decision making.

Read more on Section 172, **page 93**

Investment into transition growth★ engines

Following extensive board discussions with members of the bp leadership team, the board approved the strategic progress update announced in February 2023 at the time of full-year results (see more on **page 90** of the *bp Annual Report and Form 20-F 2022*). Further to the board's decision in February 2023 to invest up to $8 billion more into our transition growth engines by 2030, three significant investment decisions were made by the board in 2023:

Convenience and mobility

In February 2023 bp agreed to purchase TravelCenters of America for $1.3 billion, adding around 290 sites to our retail network, strategically located on major highways across the US – complementing bp's US convenience and mobility offering and combining conventional fuel sales with a significant convenience offer and the potential to integrate EV charging, biofuels, renewable natural gas and in time hydrogen mobility.

Wind

In July 2023 bp was awarded the rights to develop two offshore wind projects in Germany, marking bp's entry into offshore wind in continental Europe. The power from the wind farms is expected to be used to support bp's green hydrogen★ and biofuels production★, electric mobility growth and refinery decarbonization, as well as wider industry decarbonization in Germany. bp expects to connect them to the grid by the end of 2030.

Solar

In November 2023 bp announced that it had agreed to acquire the non-bp-owned share of Lightsource bp, one of the leading global utility-scale solar and battery storage developers, providing low-cost green electrons at scale in service of bp's hydrogen, biofuels, EV charging and power trading. Subject to regulatory approvals, the deal is expected to close in the second half of 2024.

Stakeholders considered
Customers
Governments and regulators
Investors and shareholders
Partners and suppliers
Workforce
Society

In considering the decisions outlined above, the board assessed a range of risks and opportunities across multiple stakeholder groups. Responding to what governments and customers ask of bp, the board advanced towards our net zero ambition by investment in our transition growth engines and also our resilient hydrocarbons.

Partners and suppliers will benefit from the three transactions outlined above as they provide greater certainty of dealing with bp as a counterparty, whilst also helping to de-risk and underpin delivery of bp's related 2025 targets, for the benefit of the workforce and customers.

Appointment of new chief executive officer (CEO) and chief financial officer (CFO)

The robustness of our governance framework and emergency succession plans enabled the board to take swift action following the resignation of bp's former CEO in September 2023.

Agility

The board met immediately after the former CEO confirmed his resignation from the board. The activation of our emergency succession plans allowed for the board to promptly appoint Murray Auchincloss as interim CEO, providing reassurance to our investors and our own people.

Leadership pipeline

Evidencing the strength and depth of our senior-level leadership, and the rigour of the talent review process which underpins our succession planning, Kate Thomson was appointed as bp interim CFO within a week of the former CEO's resignation. In this interim role, Kate demonstrated strong finance leadership and deep knowledge of the sector in her delivery, confirming for the board her suitability for the role of permanent CFO.

Dedicated committee

A new committee of the board was established on an interim basis to lead the process for the selection of our new CEO, comprising the chair and three non-executive directors. The committee recommended candidates which the full board considered for appointment. Read more on **page 97**.

Role expectations

The committee agreed the primary accountabilities and leadership qualities for the new CEO to deliver against, providing a clear foundation on which to build the search.

Rigorous process

A thorough and highly competitive search exercise supported by international search advisors included detailed consideration of a wide and diverse range of candidates, both internal and external to bp.

Stakeholders considered
Customers
Investors and shareholders
Partners and suppliers
Workforce

Meetings were arranged with investors, the workforce and key partners over several days immediately following the former CEO's resignation to enable transparent dialogue. This valuable engagement helped inform the board during the permanent CEO and CFO succession process.

As part of its decision making, the board took account of stakeholder views and impact in appointing new executive directors. The board unanimously agreed that Murray Auchincloss was the right leader to help drive bp's strategy and create value and that Kate Thomson would further strengthen the board as CFO.

★ See glossary on **page 373**

Board activities

During 2023, the board and its committees had regular scheduled meetings and held additional meetings on an ad hoc basis, as required by business needs.

Board meeting agendas are typically agreed in advance by the chair, chief executive officer (CEO) and company secretary, framed around four pillars – strategy, performance, people and governance.

The information provided below sets out some of the board's activities across each of these pillars during 2023. These activities were supported by the committees of the board where appropriate, with committee chairs providing update reports at board meetings.

Key

Information that supports TCFD Recommendations and Recommended Disclosures in relation to Governance (see **page 55**)

Strategy

Strategic direction

- Discussed strategic progress at each board meeting, including business development updates and deep-dives into our five transition growth★ engines to help embed a shared understanding of the business, market context, capital allocation and profitability over time.
- Approved the strategic progress update announced in February 2023 that included an update on how we expect to achieve our short- to medium-term pathway to deliver our net zero production★ aim (aim 2) (see **page 49**).

Macroeconomics

- Received regular updates on the effect of the evolving macroeconomic environment on our strategy throughout the year.

Mergers and acquisitions pipeline

- Approved the purchase of TravelCenters of America in February 2023, which brings growth opportunities for four of our five transition growth engines: convenience, EV charging, biofuels/renewable natural gas (bioenergy) and, later, hydrogen (see **page 20**).
- Approved the acquisition of the non-bp-owned share of Lightsource bp in November 2023, which is expected to help underpin and de-risk delivery of bp's targets for its transition growth engines – in hydrogen, EV charging and biofuels as well as in power trading (see **page 23**).

Investor update

- Reviewed materials for the October 2023 investor presentations on the company's plans and expectations for our oil and gas and biogas businesses (see **page 93**).

Safety and sustainability

- Reviewed ongoing safety, sustainability, project and operational performance throughout the year.

Performance

Annual plan

- Reviewed and approved the 2023 plan, which focused on capital allocation investments into oil and gas assets, and our transition growth engines, while continuing to strengthen the balance sheet.
- Reviewed full-year delivery against the 2022 plan and monitored delivery against the 2023 plan.

Financial frame and distributions

- Reviewed options for enhancing and simplifying the financial frame.
- Considered transition risks and opportunities as part of the review of the financial frame.
- Reviewed distributions to shareholders each quarter, consistent with the financial frame.
- Approved share buyback proposals together with 10% increases to our dividend per ordinary share for 4Q 2022 and 2Q 2023.

Capital expenditure

- Received a business update from the CEO at every board meeting. Updates covered projects across all of bp's businesses and, where appropriate, specific climate-related considerations.
- The CEO's updates included any inorganic or divestment opportunities of more than $100 million, or which would represent a new strategic business.
- Approved entering the German offshore wind market with a 4GW auction win in July 2023, where the renewable power generated is expected to help enable us to leverage integration opportunities with green hydrogen★, EV mobility and power trading as we build the business.
- Reviews and reserves for its approval all resilient hydrocarbon investment opportunities above $3 billion and all other transition and low carbon investment opportunities above $1 billion.

Meeting colleagues at bp's Canary Wharf office in London, UK

St James' Square Town hall, London, UK

Acquisition reviews

- Assessed the integration of Archaea Energy.
- Reviewed development pipelines and broader business priorities.

Principal risks

- Reviewed trends and themes arising from risk management reports.
- Reviewed bp's principal and emerging risks twice in 2023, including those related to climate and the impact of geopolitical and macroeconomic developments on the pace of the energy transition (see **page 74**).

Internal controls

- Assessed the effectiveness of the group's system of internal control and risk management as part of the review and approval of the *bp Annual Report and Form 20-F*. No specific areas of concern were identified in this assessment and the board concluded that the group's system of internal control and risk management continued to be resilient and fit for purpose, and that the system generally meets external expectations of components to be included in internal control frameworks. In arriving at these conclusions, the board took into account reports from group risk and internal audit, as well as deep-dive presentations and business reviews undertaken by the board and its committees during the year (see how we manage risk on **page 73** and bp's system of internal control on **page 134**).

People

Engagement

- Participated in the workforce engagement programme (WFEP), providing for board decisions to be better informed by the feedback received (see **page 92**).
- Through WFEP, met high-potential employees to help improve their visibility with directors.
- Held town halls in a number of countries during 2023 and undertook site visits to increase directors' direct interaction with the workforce (see **page 92**).

Succession

- Supported by the people and governance committee, the board received updates and considered the composition, skills, experience and diversity of the board, as well as that of the bp leadership team.
- Appointed the interim committee of the board that led the search process for bp's new CEO (see **page 97**).

Culture

- Reviewed feedback from the 'Pulse annual' employee surveys, agreeing actions and initiatives in response.
- The WFEP involved a number of sessions on bp's 'Who we are' culture frame, to receive employees' perspectives on bp's culture.
- Reviewed the annual ethics and compliance report, the function's priorities and objectives, including reviewing changes to the code of conduct and the associated proposed roll-out programme.
- Established a new interim board committee to gain insights into the implementation of the 'Who we are' culture frame (see **page 97**).

Diversity

- Approved an updated board diversity, equity and inclusion policy referencing the requirements of the UK Listing Rules (see **page 96**).

Governance

Board composition

- Approved the appointment of Satish Pai and Hina Nagarajan as independent non-executive directors with effect from 1 March 2023.
- Activated emergency succession process for the role of CEO and CFO, with a decision to approve Murray Auchincloss as interim CEO on 12 September 2023. Approval of the appointment of Kate Thomson as interim CFO followed on 19 September 2023.
- Approved the appointments of Murray Auchincloss as CEO on 17 January 2024 and Kate Thomson as CFO and board member on 2 February 2024.

Director training

- Completed online training on matters including ethics and compliance and digital security.
- Attended deep-dive knowledge sessions during 2023, including a teach-in on liquefied natural gas.
- Individual non-executive directors attended one-to-one training sessions with senior members of the bp management team.

Board effectiveness review

- Conducted an internally facilitated evaluation of the board under the leadership of the chair and the people and governance committee (see **page 95**).

Investor engagement

- Undertook extensive investor engagement throughout the year (see **page 92**).

Corporate governance framework

- Operated in accordance with the governance framework established in 2020 (see **page 88**).
- Considered the FRC's proposed reforms as part of their 2023 consultation on the UK Corporate Governance Code.

Site visit to our Bingo facility in the Permian Basin, US

Douglas House Town hall, London, UK

Our stakeholders

Throughout 2023 directors engaged with a broad range of stakeholders collectively and individually, through different activities and channels, across a wide geographical reach.

Investors and shareholders

Debt and equity investors are key stakeholders through their provision of finance and stewardship. Regular and constructive dialogue is important to hear their views, communicate bp's strategy and to build and maintain confidence in our ability to deliver it.

Directors engaged with investors via roadshows, quarterly results calls, presentations and the Annual General Meeting (AGM). Individual and group investor engagement meetings were held with the chair of the board and chair of the remuneration committee, who shared feedback with the wider board. Other committee chairs were available to investors as needed throughout the year. Feedback and insights from a meeting with retail holders via the UK Shareholder Association and ShareSoc were incorporated into a briefing for directors. Directors also discussed with management the implications of investor studies and surveys.

Customers

Customer interests are at the forefront of bp's strategy, whether end-use consumers, B2B customers or distributors. Focusing on customers provides the driving force for new business models and service platforms.

Directors visited retail sites★ including an EV charging location at one of our *Aral* sites in Düsseldorf, Germany, to gain insights into the customer experience. Other director visits included a safety review at one of our Hammersmith retail sites in London, supporting bp's commitment to put safety first.

Workforce

The board recognizes the value gained from engaging with bp's workforce. Regular engagement with members of the workforce helps bp attract, develop and retain talent.

The workforce engagement programme (WFEP) is the board's formal engagement mechanism, which is considered effective in complying with Provision 5 of the UK Corporate Governance Code (the Code). Its effectiveness is reviewed annually by the people and governance committee (see **pages 94-95**).

Beyond the WFEP, directors undertook site visits, town hall events and webcasts and a programme of meetings with high-potential employees. Engagements included a visit to the Gelsenkirchen refinery in Germany and Castellón refinery in Spain. 'Pulse annual' employee survey results and summary 'Open Talk' reports (bp's whistleblowing service, meeting Provision 6 of the Code) were also reviewed by the board.

Additional engagement centred on culture was undertaken by directors in 2023 via a specific committee, adding to bp's activities meeting Provision 2 of the Code (see **page 97**).

Governments and regulators

Engagement with governments and regulators is important in upholding the legal and reputational standing of bp and enables the business to better contribute and respond to emerging standards.

In addition to reviewing regulatory updates in 2023, including proposed UK audit and corporate governance reforms, directors attended global political and economic events such as the Business 20 (B20) Summit and the World Economic Forum. Throughout 2023 board members met with government officials from Norway, Kuwait, Germany, Egypt and Spain amongst other nations. This included an event with over 250 officials, diplomats and regulatory agencies at bp's Washington DC office in the US.

Partners and suppliers

Strong relationships with partners and suppliers are important to support business opportunities. Engagement with them helps bp meet our customers' needs today and in the future.

The chief executive officer and chief financial officer have regular meetings with key suppliers. Directors have attended partner-hosted events in 2023, such as the Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC), with a focus on bp's strategic priorities in both resilient hydrocarbons and low carbon energy.

Society

Through our business operations, we seek to benefit the people, businesses and environment in the communities we operate in, which span 61 countries. We also rely on wider society as potential customers, partners and employees.

As well as the consideration of geopolitical events, board members engaged with communities local to bp operations, for example when visiting Tangguh, Indonesia. Directors also received updates on research activities to understand society's energy needs, ranging from industrial fluids for robotics and wind at *Castrol's* headquarters, to a visit to the Global Applied Science Centre in Bochum, Germany.

Spotlight on safety and sustainability

Directors gained valuable insights from engagements with a wide range of stakeholders during the safety and sustainability committee's visit to our major liquefied natural gas (LNG) facility in Tangguh, West Papua, Indonesia.

Safety and sustainability committee report, **page 104**

Tangguh, West Papua, Indonesia

How the board has had regard to Section 172 factors

The table below provides information on how the directors have had regard to the factors set out in Section 172 of the Companies Act 2006. Other examples can be found under key decisions made by the board on **page 89**.

Section 172 factor	Key examples
The likely consequences of any decisions in the long-term	All board decisions are made within a governance framework which supports the delivery of bp's strategy, designed to consider and promote the long-term success of the company. Read more on our governance framework on **page 88** and our strategy and business model on **pages 12-17**.
Interests of employees	In 2023 members of the board engaged with employees in jurisdictions including Australia, Germany, Spain, the UK and US as part of the workforce engagement programme. Topics covered included safety, culture, remuneration, talent attraction and retention and factors affecting the company's performance and strategy. Read more on our people on **pages 70-72**.
Fostering the company's business relationships with suppliers, customers and others	As part of the board's structured calendar, reports from the ethics and compliance team on partner and supplier issues are received on an annual basis. In 2023 the audit committee and safety and sustainability committee held a joint meeting with members of bp's non-operated joint ventures solutions leadership team, discussing risks and opportunities in this part of our business. Read more on our strategy and business model on **pages 12-17**.
Impact of operations on the community and the environment	The board established bp's purpose of reimagining energy for people and our planet, its net zero ambition and its sustainability frame, which has three components – net zero, caring for our planet and improving people's lives Through the board's activities to satisfy itself that this purpose is aligned with bp's culture, the directors have continued to be active contributors to internal and external discussions which support bp's strategy and net zero people and planet aims. Read more on the board's oversight of climate-related risks and opportunities on **pages 55-66**. Read more on sustainability: improving people's lives, **page 53**, and caring for our planet on **page 54**.
Maintaining a reputation for high standards of business conduct	The board is responsible for bp's code of conduct, which sets expectations and standards for doing the right thing. The code guides business decisions from the front line to the boardroom and every member of the board is held to account against the standards set out in our code. Read more on sustainability: ethics and compliance, **page 72**.
Acting fairly between members of the company	During 2023 the board met with a wide range of shareholders, engaging with both retail and institutional holders, including at the AGM. Valuable feedback was considered on a broad range of topics including governance, remuneration and strategy.

Investor update in Denver, US

Investor update

In October 2023, bp held an investor update, inviting analysts and investors to our offices in Denver, followed by a guided tour of some of bpx energy's Permian Basin operations. This included Bingo, our second central processing facility, where oil is separated from water and impurities. Topics covered included safety, our 2025 targets and 2030 aims, with breakout sessions focused on oil, gas, LNG, base performance and resources and capital productivity.

bp.com/investors

bp pulse launch event, Birmingham, UK

Customer centricity in *bp pulse*

As part of the workforce engagement programme, directors met with 10 members of the *bp pulse* team to gain insights into customer centricity. Attendees reflected that there had been improvements in psychological safety as a result of greater clarity on strategy and structure. They also shared a desire to focus on simplicity moving forward and discussed the challenges faced in data integration.

People and governance committee

> The committee's major areas of focus in 2023 were succession planning, executive and non-executive, as well as overseeing management's embedding of our 'Who we are' culture frame.

Chair's introduction

Dear fellow shareholders,

2023 was a particularly active year for the committee. The committee's major areas of focus in 2023 were succession planning, executive and non-executive, as well as overseeing management's embedding of our 'Who we are' culture frame, which encompasses bp's values and behaviours.

Executive succession plans were reviewed during the year, covering not only succession options and development plans for the bp leadership team, but also emerging talent throughout the organization. Given the importance the board attaches to ensuring a strong pipeline of future leaders, the committee oversaw the launch of a new leadership development programme. This programme provides structured development opportunities for all employees, but focuses in particular on those with high executive potential, while also helping to advance our diversity, equity and inclusion (DE&I) ambitions.

The committee reviewed bp's people-related priorities for 2023, which included the roll-out of the company's 'Who we are' culture frame, and further enhancing workforce engagement to better inform board-level debate and decisions. Read more on **page 95**.

Looking ahead to 2024, the committee's focus will remain on executive succession, the gradual refreshing of the board as non-executives reach the end of their tenure, and initiatives to develop and enhance bp's culture.

The committee's review of the effectiveness and further embedding of the 'Who we are' culture frame will provide valuable qualitative data about the company's culture and areas where further focus is required.

Role of the committee

The committee seeks to ensure that the composition and structure of the board remains effective and also monitors the balance of skills, knowledge, experience and diversity required. The process for the nomination, induction and orderly succession of candidates for the board, the leadership team and the company secretary role are led by the committee, as is the annual review of the board's performance.

Key responsibilities

The committee's full terms of reference can be viewed at **bp.com/governance**.

Helge Lund
Committee chair
8 March 2024

Meetings and attendance

The committee met five times in 2023. The EVP people & culture regularly attended the meetings.

Non-executive directors	Five scheduled meetings
Helge Lund: member (July 2018), chair of the committee (September 2018)	5/5
Dame Amanda Blanc: member[a]	4/5
Paula Rosput Reynolds: member	5/5
Sir John Sawers: member	5/5

a Dame Amanda was unable to attend the meeting in November due to a pre-existing commitment which the committee was notified of upon her appointment. She received accompanying material and had the opportunity to provide comments to the committee.

Workforce engagement programme

Under the board's workforce engagement programme (WFEP), every non-executive director attends at least one session each year where they hear directly from 10-12 individuals from a section of the workforce.

To better inform the board's discussions and decision making, the themes of the WFEP sessions were directly aligned with the board's agenda for 2023. During the year, directors met with colleagues from our offshore wind team, the gas & low carbon energy business group, the US retail operating organization, Archaea Energy, *bp pulse* and our hydrogen businesses in the UK, Australia and Germany.

Participants shared insights on customers, competitors and the energy transition, and views on bp's strategy, technology, market challenges, ways of working and culture. An anonymized summary of each session was reviewed by the committee, and key themes shared with the board.

In 2023 the committee also reviewed the workforce engagement mechanism and deemed the WFEP appropriate for the activities and structure of bp.

Activities during the year

Succession planning

Board succession planning

- Reviewed during the year the tenure, skills, experience and diversity of the existing board members and the succession plans for non-executive directors, including succession for the roles of senior independent director and chair of the remuneration committee.
- Following these reviews, the committee agreed the criteria for two roles to bolster the experience and interests of the board, covering industry, operational, manufacturing and remuneration experience, with a focus on representation from our key markets.
- Engaged MWM Consulting and Spencer Stuart in support of search activity for new board candidates, while the chief executive officer (CEO) succession committee engaged Egon Zehnder in support of the company's search for a CEO[a]. Read more about the CEO succession committee on **page 97**.

Executive succession planning

- Reviewed the leadership team succession planning scenarios over the short, medium and long-term, mapping the key skills and experience required to fulfil these positions for the continued implementation of bp's strategy and net zero ambition. T The robustness and effectiveness of the committee's emergency succession plans were evidenced by the swift appointments of Murray Auchincloss as interim CEO and Kate Thomson as interim chief financial officer (CFO) following the resignation of the former CEO in September 2023. Read more on Murray's appointment as CEO on **page 97**.
- Leadership team succession planning is underpinned by a comprehensive talent review process. In being recognized as a succession candidate for the role of CFO, Kate Thomson underwent a rigorous evaluation, including an external third-party assessment, to identify the skills and qualities she could bring to an executive role. Following her appointment as interim CFO in September 2023, Kate demonstrated strong finance leadership confirming her suitability for the role of CFO and executive director of the board.
- Reviewed the launch of new bp-wide leadership development initiatives, including a new programme with INSEAD aimed at supporting the progression of leaders with high-potential. The programme included specific pathways to promote diverse talent.
- Oversaw the development of high-performing individuals to accelerate the development of the skills needed to drive forward bp's transition. T

Culture

'Who we are'

- Received updates on how initiatives were contributing to embedding the 'Who we are' culture frame.
- Reviewed feedback received through the employee 'Pulse annual' employee survey.
- For information on the committee set up on an interim basis in 2023 to focus on culture oversight, see **page 97**.

Workforce engagement

- Received reports on workforce engagement sessions and reviewed the effectiveness of the engagement mechanism. Read more on **page 94**.
- Reviewed the results of the company's employee 'Pulse annual' employee survey and monitored progress against a defined set of 'Who we are' measures. These measures, underpinned by insights from the 'Pulse annual' employee survey, provided the committee with measurable insight into the adoption of bp's 'Who we are' culture frame and assisted the committee in understanding the sentiment of bp's workforce.

Board performance

Looking back on 2022

- Reviewed progress on previously agreed actions, including to improve the board's effectiveness and efficiency by reviewing pre-read templates to support prioritization of the board's focus areas and a refresh of forward calendar planning to optimise board members' time commitment.
- The actions identified by the board in concluding the prior year's performance were reviewed during 2023. Good progress has been made against these actions as evidenced by 2023's board review.
- In light of the three-year evaluation cycle, the committee decided that the 2023 evaluation be facilitated internally, with the next external review anticipated in 2024.

2023 board performance review

- The chair and company secretary led the internal evaluation of the board and its committees. This was supported by the use of a digital platform to better capture and organize feedback and to define and track identified actions. The chair and company secretary also held one-to-one meetings with each non-executive director which covered their individual performance.
- A review of Murray's performance as interim CEO was led by the chair, with input from the senior independent director.
- The chair's performance review was led by the senior independent director.
- Feedback was consolidated and presented to the board in early 2024. The 2023 performance review concluded that the board and its committees continue to operate effectively. Alongside the ongoing renewal of the board to ensure it has the right balance of skills, experience and diversity to oversee the company's strategy and its execution, the review highlighted some actions to further enhance its effectiveness during 2024. With the appointment of Murray Auchincloss as the new permanent CEO in January 2024, the board will support his development and effectiveness, driving shareholder value and a further commitment to its oversight of bp's purpose and culture frame. Among the actions identified by the review, a detailed programme of strategy discussions to be held during 2024 is planned to help optimise capital investment proposals in an evolving macro environment.

Learning, development and induction

Induction

- On appointment, all directors receive a formal induction, tailored to their individual needs, skills and experience and which takes account of any committees they join.
- In March 2023 Hina Nagarajan and Satish Pai were appointed as independent non-executive directors to the board, as well as to the audit committee and safety and sustainability committee respectively, with induction programmes provided in advance of and following their appointments.
- These inductions included one-to-one meetings with members of the board and leadership team and with select members of senior management.
- Feedback is sought from directors undertaking their induction programmes to ensure they are continually updated and improved.

Training and development

- Beyond directors' initial induction, ongoing training and development is provided during the routine programme of meetings and board visits (e.g. the audit committee's visit to the security operations centre, where members learned first-hand about the operations of our digital security team).

Key

T Information that supports TCFD Recommendations and Recommended Disclosures in relation to Governance (see **page 55**)

a None of the search agents have any connection with the company or individual directors, save that Egon Zehnder provides advice and support on bp's executive development programme and Spencer Stuart supports on executive recruitment.

People and governance committee continued

- Training is delivered through targeted knowledge sessions with internal or external subject-matter experts as well as online courses, with reading material provided through our secure board portal.
- During 2023 board members undertook online training on cyber security and ethics and compliance, including bp's code of conduct. A knowledge session was also provided by bp's trading & shipping business to certain directors.

Diversity

The board believes that, to deliver on our purpose and strategy, we must foster diversity of thought.

Diversity of the board

- The 2023 board DE&I policy was approved and recommended for adoption by the board at its meeting in February 2023.
- The DE&I policy included revisions to recognize broader forms of diversity and a commitment by the board to undertake DE&I training and development initiatives.
- The revised DE&I policy set, as a minimum, targets of at least 40% female representation on the board, at least one senior board position held by a woman and at least one member of the board from an ethnic minority background.
- The DE&I policy:
  - applies to the board and its committees and requires all aspects of diversity to be considered when reviewing composition, skills, experience and the overall balance of the board and its committees.
  - aims to achieve better decision making and outcomes by bringing together people with differences of opinion and background, but who share a common ambition.
  - complements bp's wider diversity policies and the group's values, code of conduct and sustainability frame. Read more at **bp.com/governance**.
- Appointments to the board during 2023 and up to the date of publication of this report considered the objectives of the DE&I policy and, as a result, our female representation in senior board positions has doubled and our ethnic minority representation on the board has tripled since 2022.
- As at 31 December 2023, the board exceeded the UK Listing Rules diversity benchmark targets, since more than 40% of the board are women, including our senior independent director, and three of our directors identify as being from a minority ethnic background (see **page 133**). bp's progress was also recognized in the FTSE Women Leaders Review: Achieving Gender Balance, published in February 2024.

Diversity of senior leaders

- The committee oversees executive succession planning and monitors its alignment with bp's DE&I ambitions and strategy.
- As at 31 December 2023, the composition of senior management, defined as the leadership team (being the first layer of management below board level) and the company secretary, in accordance with the UK Corporate Governance Code 2018, and their direct reports comprised 51% women (2022 51%) and 26% Black, Asian and ethnic minority individuals (2022 25%).
- The committee oversees the work undertaken by management to support career progression of under-represented groups in a sector that has historically been male-dominated with limited diversity in other forms.
- The board is cognisant of the Parker Review objective for companies to set targets to 2027 for ethnic minority representation at senior management level. We have set diversity ambitions to 2025, which include our ambitions to achieve:
  - 30% of our group and senior leader roles in the US held by individuals from an ethnic minority background.
  - 15% of our group and senior leader roles in the UK held by individuals from an ethnic minority background.
- For numerical data on the ethnic background and gender identity or sex of bp's board and executive management, in line with the UK Listing Rules, see **page 133**.

Diversity of the workforce

- DE&I remains a key part of bp's people strategy.
- The board is supportive of bp's employee-led business resource groups, which provide forums for employees to obtain support and networking opportunities around specific themes such as ethnicity, sexual orientation and social mobility (see **page 71**).

Skills matrix

	Background and experience							
	Energy markets	Operational excellence and risk management	Global business leadership and governance	Technology, digital and innovation	Climate change and sustainability	People leadership and organizational transformation	Society, politics and geopolitics	Finance, risk and trading
Non-executive directors								
Dame Amanda Blanc		●	●		●	●	●	●
Pamela Daley			●					●
Helge Lund	●	●	●		●	●	●	
Melody Meyer	●	●	●		●			
Tushar Morzaria		●	●			●		●
Hina Nagarajan		●	●	●	●	●		
Satish Pai	●	●	●	●	●	●		
Paula Rosput Reynolds	●	●		●		●		●
Karen Richardson		●	●	●		●		●
Sir John Sawers						●	●	
Johannes Teyssen	●	●	●		●	●	●	

For further detail on the directors' climate change and sustainability experience, see the TCFD section on **page 56**, and for the directors' biographies see **page 83**.

In 2023 two additional interim committees were established. More detail on their roles and key responsibilities can be found below.

CEO succession committee

The board met immediately after the former CEO resigned in September 2023. Our existing succession plans were activated and the board appointed Murray Auchincloss as interim CEO within a few hours. Demonstrating the strength of our senior-level leadership and the rigour of our emergency succession plans, Kate Thomson was appointed as interim CFO one week later.

Following this, a new board committee was formed on an interim basis, focused on the selection of the next CEO. The committee led a thorough and highly competitive process for the identification, selection and appointment to the board of bp's next CEO. Helge Lund was committee chair, with Amanda Blanc, Tushar Morzaria and Johannes Teyssen committee members.

The committee had a clear remit including the workstreams leading to the appointment of the CEO. A project plan was agreed and the timeframe and delivery of key workstreams were monitored.

With inputs from the board, the committee agreed the role profile and the proposed hiring approach, which included, but was not limited to, psychometric testing, interview and candidate submission content. This approach was then confirmed with the chosen search firm, Egon Zehnder.

Over a period of four months, the committee met regularly and interviewed a range of high-calibre internal and external candidates. Following robust due diligence on each candidate, the committee recommended a shortlist to be interviewed by the full board.

The process resulted in the board's unanimous agreement that Murray Auchincloss was the best candidate and the right leader for bp. Read more in the chair's letter on **page 4**.

'Who we are' oversight committee

The 'Who we are' oversight committee was established on an interim basis by the board in 2023, to gain insight into management's progress towards embedding bp's 'Who we are' culture frame, with a specific emphasis on psychological safety and speaking up.

The committee reviewed management's approach to measuring bp's culture, including the analysis of 'Pulse live' and 'Pulse annual' employee surveys of cross-sections of bp's workforce and comparative benchmark data, as well as external best practice. Additionally, the committee considered the effectiveness of the company's code of conduct and associated policies and guidelines and the operation of the company's confidential speak-up programme. bp's people & culture and ethics and compliance management supported the committee's work and attended meetings.

The work of the committee was supplemented by individual engagement sessions with different parts of the workforce to hear directly about issues of relevance to the measurement of bp's culture. Our existing workforce engagement programme described on **page 94** provided the ideal framework for this, with engagement sessions focused on culture which have supported the committee's work.

The committee's activities have informed the board's assessment and monitoring of culture. Its work will additionally help to facilitate how the views of the workforce are considered in board discussions and decision-making. It is expected that the responsibilities of the 'Who we are' oversight committee will be absorbed by the people and governance committee.

Chaired by Helge Lund, the committee met twice in 2023. The other committee members were Amanda Blanc, Melody Meyer and Paula Rosput Reynolds.

Audit committee

> The committee has regularly scrutinized key accounting issues and judgements made by management to monitor and assess the continued integrity of the group's financial reporting.

Chair's introduction

Dear fellow shareholders,

I am pleased to present the committee's report for the year ended 31 December 2023.

The challenging macro environment and energy market volatility have been areas of focus for the committee this year, with close attention paid to energy price assumptions and the ongoing suitability of discount rates for impairment testing. The committee has regularly scrutinized key accounting issues and judgements made by management to monitor and assess the continued integrity of the group's financial reporting. Read more on **page 99**.

The committee has monitored the approach and scope of the group's non-financial reporting framework, taking into account evolving environmental, social and governance (ESG) reporting. It also receives regular updates from management on the wider control environment, such as the controls in place for financial reporting, and examines the progress of remediating any deficiencies with input from bp's internal audit team and our external auditor, Deloitte.

The committee reviewed and monitored the principal risks allocated to it by the board for 2023, through a combination of business reviews and focused engagements, as well as regular updates from management, internal audit and Deloitte. Read more on **page 102**.

Engaging with bp's workforce is important to us, and we were pleased to spend time with the accounting, reporting and control and internal audit teams in our technology and business centre in bp's Sunbury, UK office. Read more on **page 101**. The committee continues to engage with other stakeholders where appropriate, including regulatory inspections when they occur.

Role of the committee

The committee monitors the effectiveness of the group's financial reporting, including ESG and climate-related financial disclosures, systems of internal control and risk management. It also monitors the integrity of the group's external and internal audit processes.

Key responsibilities

A summary of the committee's terms of reference is on **page 359** and the full terms of reference can be viewed at **bp.com/governance**. This report describes how bp has approached compliance with the provisions of the FRC's Audit Committees and the External Audit: Minimum Standard.

Tushar Morzaria
Committee chair
8 March 2024

Financial expertise

The board is satisfied that:

- Tushar Morzaria, the chair of the committee, has recent and relevant financial experience as required by the UK Corporate Governance Code 2018 and that he is competent in accounting and auditing in accordance with the FCA's Disclosure Guidance and Transparency Rules.
- The committee has an appropriate and experienced blend of commercial, financial and audit expertise to assess the issues it is required to address, as well as competence in the oil and gas sector.
- As a US foreign private issuer, the committee meets the independence criteria provisions of Rule 10A-3 of the US Securities Exchange Act of 1934, and Tushar Morzaria can be regarded as an audit committee financial expert as defined in Item 16A of Form 20-F.

Meetings and attendance

The committee met nine times in 2023. Regular attendees included the chief financial officer (CFO), SVP accounting, reporting and control, SVP internal audit, EVP legal, and the external auditor.

Non-executive directors	Eight scheduled meetings	One ad hoc meeting
Tushar Morzaria: member (September 2020), chair of the committee (May 2021)	8/8	1/1
Pamela Daley[a]: member	8/8	0/1
Paula Rosput Reynolds: member	8/8	1/1
Karen Richardson: member	8/8	1/1
Hina Nagarajan: member (March 2023)	7/7	1/1

a One ad hoc meeting was arranged during December. As it took place outside of the scheduled committee calendar, which is agreed far in advance, Pamela was unable to attend due to a prior commitment. She received accompanying material and had the opportunity to provide comments to the committee.

Activities during the year

Financial reporting and assurance

- Monitored the integrity of and reviewed the quarterly, half-year and annual financial statements and supporting materials, including key accounting judgements, and discussed these with management and the external auditor.
- Reviewed and challenged the application and appropriateness of significant accounting policies and financial reporting judgements, concluding that the financial statements appropriately addressed the key accounting judgements and estimates in respect of both the amounts reported and disclosures made. Examples are set out in the table below.
- Reviewed the affordability of proposed distributions (dividends and share buybacks) under bp's financial frame as part of the quarterly results process and reported to the board on the outcome of that review.
- Reviewed the company's going concern assumption and longer-term viability statement. Determined and recommended to the board that it was appropriate to adopt the going concern basis of accounting and the longer-term viability of the company in accordance with Provision 31 of the UK Corporate Governance Code. Read more on **page 135**.
- Discussed and challenged financial reporting and internal controls processes and reviewed any control gaps identified and mitigating actions. Read more under the internal controls section on **page 102**.
- Received a report from management on the verification process undertaken in respect of the *bp Annual Report and Form 20-F*, including non-financial disclosures such as the Task Force on Climate-related Financial Disclosures (TCFD). T
- Challenged management on the underlying assumptions used in the TCFD assessment. T
- Recommended to the board that the *bp Annual Report and Form 20-F* was fair, balanced and understandable. Read more on **page 135**.
- Considered the FRC's proposed reforms as part of the FRC's 2023 consultation on the UK Corporate Governance Code.

Key

T Information that supports TCFD Recommendations and Recommended Disclosures in relation to Governance (see **page 55**)

Examples of how key accounting judgements and estimates were considered and addressed, and how relevant accounting policies have been applied	Audit committee activity	Conclusions/outcomes
Impact of climate change and the energy transition T		
Climate change and the transition to a lower carbon economy may have significant impacts on the currently reported amounts of the group's assets and liabilities, and on similar assets and liabilities that may be recognized in the future.	• Reviewed management's assumptions relating to impairment testing, recoverability of exploration assets and decommissioning provisions. Read more below. • Reviewed how management's revised best estimate of oil and natural gas prices are in line with a range of transition paths consistent with the goals of the Paris climate change agreement.	• Management's revised best estimate of oil and natural gas prices are in line with a range of transition paths consistent with the goals of the Paris climate change agreement. • Read more in Note 1 regarding how bp applies carbon pricing in its impairment testing, sensitivity analyses estimating effects of changes in net revenue and changes in the expected timing of decommissioning.
Provisions		
The group holds provisions primarily for decommissioning, environmental remediation T and litigation. The most significant provision is for the future decommissioning of oil and natural gas production facilities and pipelines. Estimation uncertainty exists as most of these events are many years in the future. Assumptions are made by bp in relation to cost estimation, settlement dates, technology, legal requirements and discount rates. There is also a risk that decommissioning obligations from previously divested assets revert to bp.	• Received briefings on decommissioning (including the process for managing the risk of decommissioning reversion), environmental, asbestos and litigation provisions. These included the requirements, governance and controls for the development and approval of cost estimates and provisions in the financial statements. • Reviewed and challenged the group's discount rates for calculating provisions.	• Decommissioning provisions of $12.4 billion were recognized on the balance sheet at 31 December 2023. • The discount rate used by bp to determine the balance sheet obligation at the end of 2023 was a nominal rate of 4%, based on long-dated US government bonds; an increase of 0.5% from 2022.
Recoverability of asset carrying values		
Determination as to whether and how much an asset, cash generating unit (CGU) or group of CGUs containing goodwill is impaired involves management judgement and estimates on uncertain matters such as future commodity prices, discount rates, production profiles, reserves and the impact of inflation on operating expenses. Judgement is also required to determine whether it is appropriate to continue to carry intangible assets related to exploration costs on the balance sheet.	• Reviewed policy and guidelines for compliance with oil and gas reserves disclosure regulation, including the group's reserves governance framework and controls. • Reviewed and challenged the group's oil and gas price assumptions. • Reviewed and challenged the group's discount rates for impairment testing purposes. • Impairment charges, reversals and 'watch-list' items were reviewed as part of the quarterly due diligence process.	• The group's price assumption for Brent oil and for Henry Hub gas were updated as set out on **page 30** and in Note 1. • Sensitivity analyses estimating the effect of changes in net revenue and discount rate assumptions have been disclosed in Note 1. • Net impairment charges of $5.7 billion have been disclosed in Note 4. • Exploration intangibles totalled $4.3 billion at 31 December 2023.

Audit committee continued

Examples of how key accounting judgements and estimates were considered and addressed, and how relevant accounting policies have been applied	Audit committee activity	Conclusions/outcomes
Pensions		
Accounting for pensions and other post-retirement benefits involves making estimates when measuring the group's pension plan surpluses and deficits. These estimates require assumptions to be made about uncertain events, including discount rates, inflation and life expectancy.	• Reviewed and challenged the group's assumptions used to determine the projected benefit obligation at the year end, including the discount rate, rate of inflation and salary growth and mortality levels.	• At 31 December 2023, surpluses of $7.9 billion and deficits of $5.5 billion were recognized on the balance sheet in relation to pensions and other post-retirement benefits. • The method for determining the group's assumptions remained largely unchanged from 2022. The values of these assumptions and a sensitivity analysis of the impact of possible changes on the benefit expense and obligation are provided in Note 24.
Investment in Aker BP		
Judgement is required in assessing the level of control or influence over another entity in which the group holds an interest. bp uses the equity method of accounting for its investment in Aker BP and bp's share of Aker BP's oil and natural gas reserves is included in the group's estimated net proved reserves of equity-accounted entities. The equity-accounting treatment of bp's 15.9% interest in Aker BP in 2023 was dependent on the judgement that bp had significant influence over Aker BP.	• Considered whether bp continued to retain significant influence over Aker BP throughout 2023.	• bp retained significant influence, as defined by IFRS, over Aker BP throughout 2023.
Investment in Rosneft		
bp's interest in Rosneft is measured at a fair value of nil.	• Reviewed the accounting considerations relating to bp's shareholding in Rosneft and other businesses with Rosneft in Russia, including the valuation of these investments.	• bp continues to determine that it does not have significant influence over Rosneft. • bp considers that it is not currently possible to estimate any carrying value of the interest in Rosneft other than zero and that the accounting criteria for recognizing any dividend income have not been met.
Derivatives★		
For level 3 derivative financial instruments, bp estimates their fair values using internal models due to the absence of quoted market pricing or other observable, market-corroborated data. Judgement may be required to determine whether contracts to buy or sell commodities meet the definition of a derivative, in particular liquefied natural gas (LNG) contracts.	• Received a briefing on the group's trading risks and reviewed the system of risk management and controls in place. • Reviewed the control process and risks relating to the trading business. • Received updates on accounting judgements on LNG and derivatives associated with hybrid bonds.	• bp has assets and liabilities of $9.2 billion and $7.1 billion, respectively, recognized on the balance sheet for level 3 derivative financial instruments at 31 December 2023, mainly relating to the activities of the trading & shipping function. bp's use of internal models to value certain of these contracts has been disclosed in Note 1. • bp considers that contracts to buy or sell LNG do not meet the definition of a derivative under IFRS.

External audit

Auditor reappointment and independence

- Considered and agreed to recommend the reappointment of the external auditor to the board.
- Assessed the independence of the external auditor on an ongoing basis, taking account of the information and assurances provided by the external auditor, the level of non-audit fees, the timeline for rotation of the lead audit partner and the timeline for the re-tender of audit services. Read more under the oversight of audit fees and non-audit services section.
- The external auditor is required to rotate the lead audit partner every five years and other senior staff every five to seven years. No partners or senior staff associated with the bp audit may transfer to the group.
- External audit services were last tendered in 2016 and the external auditor has been in role for six years (since 2018). It is anticipated that a re-tender will be completed by 2026 or sooner, in line with relevant guidelines that require a tender at 10 years. This will allow sufficient time for potential tendering firms and the company to assess non-audit services that could impair independence. The committee believes that the anticipated timeline for the re-tender of audit services is in the best interests of shareholders as it provides an appropriate balance between factors such as knowledge of controls and risks, maintaining audit quality, independence and objectivity and value for money.
- The company complies with the requirements of the Statutory Audit Services for Large Companies Market Investigation (Mandatory Use of Competitive Tender Processes and Audit Committee Responsibilities) Order 2014.

Assessment of quality and effectiveness

- Assessed audit quality and effectiveness through reports from the external auditor and management, and private meetings with the external auditor. The committee was satisfied that the audit team was providing the required quality of services, demonstrated the necessary commitment and ability and had provided constructive challenge to management. The committee received the following audit quality reports as part of its assessment:
  - **External auditor insights report** – summary of areas of opportunity for improvements to processes related to financial reporting or internal controls, management's response to the recommendations identified, progress made against any prior year items and areas of focus for the year ahead.
  - **Management survey** – the survey sought views from key internal stakeholders on the external auditor's performance, for which the main measurement criteria were: planning and scope, robustness of audit, independence and objectivity, quality of delivery, quality of people and service, and value-added advice. The survey also sought feedback on bp's commitment to the audit. The overall score from the survey increased compared to the previous year with areas of strength noted including audit team judgement, integrity and attitude, as well as communication.
- Discussed improvement opportunities, including the benefits of further information on how the external auditor used technology in their audit.

Audit plan

- Reviewed the external audit plan, in particular the materiality level versus prior years and key audit risks relating to: impairment of oil and gas property plant and equipment assets; accounting for complex transactions; valuation of financial instruments with significant unobservable inputs; and management override of controls. As part of the external audit plan, received a report on audit quality, including actions taken to address the FRC's annual report on the external auditor, as well as the inspection results of the external auditor's quality control procedures.
- Approved the external audit plan, noting key scoping changes, resourcing, and received updates on delivery against the plan, as well as an update prior to year end on key audit risks. A summary of the audit approach, including audit risks, is set out in the independent auditor's report on **pages 138-163**.

Oversight of audit fees and non-audit services

- Reviewed the fee structure, resourcing and terms of engagement for the external auditor.
- Retained oversight of bp's policy on non-audit services and the review and approval of non-audit services. The policy safeguards audit objectivity and independence through the prohibition of non-audit tax services being provided by the external auditor, the limitation of audit-related work which falls within defined categories, and by stating that the auditor may not perform non-audit services that are prohibited by the SEC, Public Company Accounting Oversight Board (PCAOB),

Sunbury, UK visit 2023

In November 2023 Tushar Morzaria and members of the committee visited the accounting, reporting and control (ARC) team at bp's offices in Sunbury, UK for a showcase of their work on controls and reporting, including a simplified close approach to quarterly financial reporting. They engaged with members of the broader finance team during a floor walk, hearing their views and thoughts on a number of key topics.

The committee members also met with the internal audit senior leadership team to discuss in depth the proposed internal audit programme for 2024, as well as plans to further harness the use of data analytics. The visit was a great opportunity to build connections with the ARC and internal audit teams, and gain insight into key areas of focus planned for 2024.

Finally, they visited the security operations centre, where they learned first-hand about the operations of our digital security team.

Audit committee continued

International Auditing and Assurance Standards Board (IAASB) or the FRC.
- Approves the terms of all audit services as well as permitted audit-related and non-audit services in advance. The external auditor is considered for permitted non-audit services only when its expertise and experience of bp are important. Approvals for individual engagements of pre-approved permitted services below certain thresholds are delegated to the SVP accounting, reporting and control or the CFO. Any proposed service not included in the permitted services categories must be approved in advance by either the committee chair or the committee prior to engagement.
- The committee, CFO and SVP accounting, reporting and control monitor overall compliance with bp's policy on audit-related and non-audit services, including whether the necessary pre-approvals have been obtained. The categories of permitted and pre-approved services are outlined in the principal accountant's fees and services on **page 360**.
- The total non-audit fees paid to Deloitte for 2023 was $3 million. The majority of these fees related to work of an assurance nature. See Note 36 for further information.
- Fees paid to the auditor for the year are set out in Note 36. The committee is satisfied that this level of fee is appropriate in respect of the audit services provided and that an effective audit can be conducted for this fee. Non-audit or non-audit-related services consisted of other assurance services.

Internal audit and internal controls

Internal audit

- Appraised the performance of the SVP internal audit and agreed their objectives.
- Recommended the SVP internal audit's remuneration to the remuneration committee.
- Met privately with the SVP internal audit. The committee chair also met with the SVP internal audit on a regular basis.
- Continued to monitor and review the effectiveness and capabilities of internal audit during the year and concluded that the function had unrestricted scope, together with access to information and sufficient resources to fulfil its mandate.
- Reviewed the internal audit plan and alignment to risk factor coverage. Received updates on audits undertaken and adjustments made to the plan. Undertook a deep-dive on the internal audit planning process for 2024.
- Received regular updates on findings during the year and challenged management's response and progress made on the closure of findings.
- Monitored progress against the internal audit plan and adjustments made during the year through updates from internal audit. Areas of focus included cyber security, digital product delivery and resilience, trading activities, aspects of the energy transition such as *bp pulse* and ethics and compliance controls.
- Oversaw the appointment in October 2023 and onboarding of the new SVP internal audit.
- Reviewed and approved the internal audit charter.
- Reviewed the implementation of recommendations from the 2022 external effectiveness review of the internal audit function, including the enhancement of data analytics.

Internal controls

- Discussed with management and the external auditor financial reporting and internal controls processes, reviewed any control gaps identified and monitored mitigating actions.
- Undertook a deep-dive on significant deficiencies and control environment, with a focus on IT user access and journal controls. The committee focused on mitigating measures, ongoing remediation work and challenged management on the timeline for the development of more enduring controls.
- Received a report from internal audit on its annual review of internal control and risk management, together with an assessment from management on the system of internal control.
- Reviewed the control and assurance framework for non-financial reporting (NFR), including ESG reporting and climate-related metrics, under the NFR framework, and challenged management as to whether bp had the most appropriate suite of NFR metrics for disclosures against bp's strategy, aims and ambition. T
- Reviewed the effectiveness of, and challenged management on, bp's system of internal control and risk management and concluded that these were effective. See the directors' statements on **pages 134-135** for further information on the basis for the conclusion on effectiveness and the nature of the review.

Risk

- Routinely reviewed and monitored principal risks allocated to it through a combination of business reviews and focused engagements, as well as updates from management, internal audit and the external auditor.

The principal risks allocated to the committee for monitoring in 2023 were:
  - Prices and markets.
  - Liquidity, financial capacity and financial, including credit, exposure.
  - Insurance.
  - Regulation.
  - Trading and treasury trading activities.
  - Reporting.
- The committee also shared responsibility for oversight of the following principal risks with the safety and sustainability committee and board:
  - Joint arrangements★ and contractors (shared with the safety and sustainability committee).
  - Ethical misconduct and non-compliance (shared with the board and safety and sustainability committee).
- Examples of committee principal risk activities, in addition to risks associated with reporting which are referenced above, included:
  - Reviewed cash flow forecasts, business affordability of distributions and the financial frame.
  - Reviewed and challenged the longer-term outlook for energy prices in line with bp's price assumptions for investment, including their consistency with the goals of the Paris Agreement compared with a broad range of external Paris-consistent scenarios. T
  - Reviewed off-balance-sheet commitments and reviewed the longer-term viability statement at year end, together with the going concern basis of accounting at the full- and half-year ends.
  - Undertook a jointly held review of non-operated joint ventures (NOJVs) risk with the safety and sustainability committee.
  - Undertook a review of insurance risk.
  - Received updates on the systems in place to assess fraud risk, the controls in place to manage and mitigate the identified risk and progress on the roll-out of additional controls.
  - Received an update on compliance with regulation together with additional briefings during the year on technical accounting updates and developing ESG reporting disclosures. T
  - Undertook two business reviews of the trading & shipping business and a deep-dive session on LNG.
- For more information on how we manage risk, see risk factors on **page 77**, liquidity and capital resources on **page 340**, and Note 29 Financial instruments and financial risk factors.

Safety and sustainability committee

"Site visits provide a valuable opportunity for committee members to experience the safety and sustainability culture within bp's operations first-hand."

Chair's introduction

Dear fellow shareholders,

I am pleased to present the safety and sustainability committee report for the year ended 31 December 2023.

The committee continued to monitor the bp leadership team's drive to improve safety and environmental performance, with a particular focus in 2023 on the reduction of tier 1 and 2 process safety events★. This included deep-dives on specific areas of the business where safety risk is considered to have the potential to be significant or material.

As part of this work, two site visits were completed during 2023: one to the Permian Basin and Thunder Horse platform in the Gulf of Mexico in February, and the second to the Tangguh liquefied natural gas (LNG) site in West Papua, Indonesia in November. Site visits provide a valuable opportunity for committee members to experience the safety and sustainability culture within bp's operations first-hand. Read more on both visits on **page 104**.

Tragically, three people lost their lives during 2023. A contractor was fatally injured at a bp wellsite in the Permian Basin in May 2023 after the forklift he was driving came into contact with an overhead powerline.

Two additional fatalities occurred in our TravelCenters of America business, which we acquired in May 2023. One was in September 2023 as a result of employee violence, and the other in November 2023 when an employee was hit by a truck.

Our sincere condolences go out to the families and friends of those who have been lost. We continue to focus on learnings from safety events and to cascade these learnings through the business.

Role of the committee

The committee oversees the management of safety and sustainability matters, including relevant systems and processes, focusing on those which it considers to be most potentially material from time to time.

Key responsibilities

The committee's full terms of reference can be viewed at **bp.com/governance**.

Melody Meyer
Committee chair
8 March 2024

Meetings and attendance

The committee met six times in 2023. Regular attendees included SVP internal audit, EVP production & operations, EVP strategy, sustainability and ventures, SVP HSE and carbon, SVP safety and operational risk assurance, SVP sustainability and VP internal audit – safety and sustainability.

Non-executive directors	Six scheduled meetings
Melody Meyer: member (May 2017), chair of the committee (November 2019)	6/6
Satish Pai: member (March 2023)	5/5
Sir John Sawers: member	6/6
Johannes Teyssen: member	6/6

Activities during the year

Safety performance and assurance

- Received updates at every meeting from the EVP production & operations on key safety performance metrics from across all parts of the business, including process, personal and operational safety and non-operated as well as operated joint ventures★.
- Received reports at every meeting on major operational, security (including crisis management and business continuity) and cyber security incidents.

Sustainability T

- Received routine updates from the SVP, sustainability, including on:
  - Progress on implementation of bp's sustainability aims.
  - Sustainability reporting.
  - The sustainability frame, including deep-dives on advancing our net zero, people and planet aims.
  - The process and findings of the external auditor's limited assurance exercise over selected sustainability metrics.
  - Internal climate policy.

Internal audit

- Received regular updates on internal audit activity, and an annual report on systems of internal control and updates on the internal audit programme.

Risk

- Routinely reviewed and monitored principal risks allocated to it through a combination of business reviews and focused engagements, as well as updates from management.
- The principal risks allocated to the committee for monitoring in 2023 were:
  - Crisis management and business continuity.
  - Process safety, personal safety, and environmental risks.
  - Drilling and production.
  - Security.
  - Product quality.

- The committee also shared responsibility for oversight of the following principal risks with the audit committee and board:
  - Joint arrangements★ and contractors (shared with the audit committee).
  - Digital infrastructure, cyber security and data protection (shared with the board).
  - Ethical misconduct and non-compliance (shared with the board and audit committee).

Principal risk deep-dives

- Reviewed and monitored the principal risks allocated to it through several deep-dive updates tabled throughout the year, for example covering risks related to wells, product quality, ethical misconduct and non-compliance, and non-operated joint ventures (NOJVs).
- Received deep-dive updates in relation to specific risk areas within the business. For example, a deep-dive was held on the bpx energy business, covering current risks, well control risk management, the Operating Management System★ (OMS) and progress against process and personal safety performance and improvement plans.
- Received further deep-dive updates regarding other significant or material events, including detail on actions being taken, for example in relation to:
  - Fatalities following a fire at a bp oil refinery in Toledo, US during 2022 (which was subsequently sold in 2023).
  - Progress made by the site operator in the reduction of flaring activity at an NOJV in Rumaila, Iraq.
  - The contractor fatality in the Permian Basin.
  - The employee fatalities at TravelCenters of America sites in 2023.
  - Regulatory compliance issues.
- Reviewed reports on significant risk events, probing management on investigations, remediating actions and the proactive cascading of learnings throughout the business.
- Received ethics and compliance reports on a quarterly basis.

Other matters

- Reviewed annual cash bonus (ACB) target adjustments.
- Reviewed and recommended to the remuneration committee, changes to the ACB framework relating to emissions reductions targets T (see **page 50**) and a structured framework for consideration of fatalities and how they should influence remuneration outcomes.

Permian Basin and Gulf of Mexico visit February 2023

Melody Meyer, chair of the committee, and Pamela Daley, member of the bp board, visited the Permian Basin and Thunder Horse platform in the Gulf of Mexico.

The trip to the Permian provided an opportunity to see how bp is seeking to reduce operational greenhouse gas emissions through its electrification strategy in the basin. The directors also heard about initiatives to eliminate routine flaring and to reduce tier 1 process safety events★. This provided both directors with an insight into the deep commitment to safety on-site.

The directors also visited the Thunder Horse production drilling quarters semi-submersible oil platform in the Gulf of Mexico, where directors engaged with the site team on the approach to safe and reliable operations within this joint venture with ExxonMobil.

Tangguh visit November 2023

The committee visited our major LNG site on the Indonesian island of Papua to meet the team and understand first-hand the safety and sustainability aspects of their operations.

The committee toured all three LNG trains and heard how safety learnings from Trains 1 and 2 had been implemented in Train 3. The visit also provided a valuable opportunity to engage with a broad variety of local stakeholders of the site. The committee:

- Met with Papuan colleagues who recently graduated from bp's technician training programme (70% of Tangguh LNG's workforce are from the local Papuan community).
- Met with the Tangguh Women's International Network (women make up 50% of the overall technician workforce that have graduated from bp's technician training programme).
- Visited the local village of Tanah Merah Baru to speak with community leaders, tour the school and get a first-hand view of Tangguh's community and sustainability initiatives.
- Visited Tangguh's mangrove plantation, where over 2,000 mangrove trees have been planted on site using recycled fertile soil from dredging activity, in addition to over one million trees planted in the local community.

Key

T Information that supports TCFD Recommendations and Recommended Disclosures in relation to Governance (see **pages 55 to 58**)

Directors' remuneration report

"During the year, bp's performance was robust – both operationally and financially... and there has been continued progress in bp's transformation to an integrated energy company."

Role of the committee

The role of the committee is to determine and recommend to the board the remuneration policy and to set chair, executive director and leadership team remuneration. In determining the policy, the committee takes into account various factors, including wider workforce remuneration, structures and alignment of reward to performance, thus promoting the long-term success of the company. The committee also reviews workforce remuneration and monitors related policies, satisfying itself that incentives and rewards are aligned with bp's goals and culture.

Key responsibilities

A summary of the committee's terms of reference is on **page 359** and the full terms can be reviewed at **bp.com/governance**.

Key areas of focus in 2023

- **Change in leadership** – set the terms of appointment for the interim CEO for the period from 12 September 2023 to 17 January 2024 and interim CFO for the period from 19 September 2023 to 2 February 2024. Determined the departure terms for the former CEO.
- **Workforce engagement** – engaged with the wider workforce on reward and wellbeing – for example, met with new hires to discuss their initial views on bp's reward structures.
- **Remuneration outcomes** – monitored in-flight progress of equity and bonus awards, and evaluated salary and benefits against peer group comparators, considering adjustments where appropriate.
- **Reporting** – reviewed the directors' remuneration report and the UK gender and ethnicity pay gap report.
- **Sustainability measures** – discussed and agreed to the sustainability measures in annual and long-term performance scorecards. For example, after consulting with the safety and sustainability committee and taking into account feedback from shareholders, the remuneration committee set an alternative measure related to operational emissions for the 2024 annual bonus and 2024-26 long-term incentive plan award. T

Meetings and attendance

The chair and the chief executive officer (CEO) attend meetings of the committee except for matters relating to their own remuneration. The CEO is consulted on remuneration of the chief financial officer (CFO), the leadership team and receives input from the committee on remuneration across the wider workforce. Both the CEO and CFO are consulted on matters relating to group's performance and the metrics adopted for each performance cycle.

bp's EVP people & culture, SVP reward, external advisors and other executives may attend where necessary. The committee consults other board committees on the group's performance and on issues relating to the exercise of judgement or discretion as necessary.

The committee met eight times during the year. All directors attended each meeting they were eligible to attend, except one previous apology for a planned meeting.

Non-executive directors	Six scheduled meetings	Two ad-hoc meetings
Paula Rosput Reynolds: member (September 2017), chair of the committee (May 2018)	6/6	2/2
Dame Amanda Blanc[a]: member (January 2023)	5/6	2/2
Pamela Daley: member	6/6	2/2
Melody Meyer: member	6/6	2/2
Tushar Morzaria: member	6/6	2/2

a Dame Amanda Blanc was unable to attend one planned meeting during 2023 due to a prior commitment. She received accompanying material and had the opportunity to provide comments to the committee.

Contents

★ See glossary on **page 373**

Chair's introduction

Dear fellow shareholders,

On behalf of the board, I am pleased to present our 2023 directors' remuneration report. This report provides details of the remuneration decisions we have reached regarding current and former executive directors. These decisions comply with the remuneration policy that was overwhelmingly approved at the 2023 Annual General Meeting (AGM) by 94% of the voting shares. The report also covers various matters pertaining to the wider workforce.

Performance and reward for 2023

Business performance

During the year, bp's performance was robust – both operationally and financially. Among other metrics, the company achieved an underlying replacement cost profit★ of $13.8 billion and sustained high levels of reliability and availability of our operations. Operating cash flow★ was $32.0 billion and net debt★ was reduced to $20.9 billion.

There has been continued progress in bp's transformation to an integrated energy company, with momentum across our resilient hydrocarbons, convenience and mobility and low carbon businesses.

2023 annual bonus

The 2023 annual bonus was based on a scorecard of performance measures across three categories: safety and sustainability (30%), operations (20%) and financials (50%).

Safety and sustainability

Safety comes first for all employees at bp; avoiding incidents or injuries that irreversibly change lives is of paramount importance.

Tier 1 and tier 2 process safety events★ performance improved, with the number of events in each category lower than in 2022 and below our targets for 2023. This outcome reflects a relentless focus on process and personal safety. Nevertheless, the positive process safety performance was sadly overshadowed by three workforce fatalities – one within bpx energy and two at our recently acquired TravelCenters of America facilities.

Details of these fatalities, including the actions taken by management in response, are set out on **page 69** in the sustainability section of the strategic report.

The committee decided to apply downward discretion to the formulaic outcome for the entire bonus score reflecting the fatality in our bpx energy business; we reduced the bonus by 5 points for all participants in the 2023 annual cash bonus plan (ACB) to reinforce all employees' individual and collective responsibility for delivering safe operations. The TravelCenters of America incidents were not reflected in the adjustment, which is in line with our new framework for assessing newly acquired assets (see **page 122**).

Further detail on the impact of safety on pay outcomes is provided on **page 115**.

Sustainability is measured in the annual bonus scorecard by the degree to which the company reduces Scope 1 and 2 emissions. We track sustainable emissions reductions (SER)★ and performance in 2023 was slightly ahead of target, delivering 0.908mte of reductions in 2023 and 7.973mte cumulatively since 2017.

Operations

bp delivered strong performance against this category, driven by both high hydrocarbon plant reliability★ and refining availability★, and achieved an outcome of 95.7% for this combined measure. In addition to reliability and availability of our hydrocarbons operations, we adopted another operational measure for 2023 intended to give focus to our newer businesses. Namely, we measured convenience & EV gross margin growth (%)★ which accounts for 10% of the award. The organization demonstrated robust year-on-year growth under this metric (10.6% vs. our target of 10%).

Financials

Our financial performance has two measures: annual adjusted EBITDA★ and adjusted free cash flow★. Adjusted EBITDA delivery was strong at $43.7 billion, resulting in a near maximum outcome for this measure. This outcome reflected both higher production and strong trading results. Adjusted free cash flow was $15.1 billion, which exceeded the maximum target we set for 2023.

As a reminder, in line with policy, the targets for both financial measures are adjusted for the actual price environment to reflect underlying performance.

Overall result

The formulaic outcome of the annual bonus considering safety, operational and financial performance was 1.64 out of 2.00. As described above, the committee decided to exercise its discretion on the mechanical outcome on account of the fatality within bpx energy and reduced the outcome by 5 points to 1.59 out of 2.00 for all participants of the plan (which translates to 79.5% of the maximum opportunity).

2021-23 performance shares

bp started its transition to an integrated energy company in 2020. As a result, this is the second cycle of equity (2021-23) in which we have evaluated performance over a three-year period since the strategy was set in place.

The 2021-23 performance shares were measured against relative TSR (20% weighting), return on average capital employed (ROACE) (20% weighting)★, adjusted EBIDA per share CAGR★ (20% weighting) and strategic progress (40% weighting). The relative weighting of these measures for this award reflected the need, we perceived at the time, to create a significant incentive for strategic progress in the period immediately following the strategy change announced in 2020, ensuring a continued focus on ambitious financial goals and the delivery of shareholder value.

bp's relative TSR performance recovered in the 2021-23 period compared to the prior 2020-22 period. bp achieved median returns relative to peers – placing bp fourth out of eight in the comparator group. This performance resulted in 25% vesting.

Underlying financial performance was resilient over the performance period and both performance measures achieved full vesting; the 2021-23 average ROACE performance was 20.6%, which materially exceeded the ambitious target we set in 2021. Similarly, adjusted EBIDA per share CAGR outperformed target and achieved an outcome of 15.8%.

Unlike the three measures described above, strategic progress was not a quantitative assessment. By design, this measure is assessed in the round – and in two successive policy votes, shareholders have affirmed their willingness to have this committee make these judgements on progress.

When assessing outcomes under the strategic progress measure for the 2021-23 performance shares, the committee considered how management have delivered on bp's transition plans, including its financial resilience, and how they relate to our communicated 2025 targets.

Overall, bp's hydrocarbons business has performed well with all underlying measures on track towards our 2025 targets. In low carbon energy we have seen growth in our pipeline against the backdrop of tough economic conditions, and our convenience and mobility businesses have shown resilient performance in tough trading conditions.

When considering strategic progress in the round, the committee determined that an outcome of 75% of maximum was appropriate.

Looking forward, the committee has decided to evaluate strategic progress based on value generation potential rather than volume goals. The committee will be looking for evidence that the transition growth★ engines are generating sustainable, and growing, earnings. Simultaneously, we will continue to assess progress in the resilience of our hydrocarbon portfolio.

Furthermore, for the next performance share cycle – 2024-26 – the committee has decided to lower the weighting of strategic progress in the scorecard to 20% of the total. We will also raise the relative TSR weighting to 25%. These changes are permitted under the current remuneration policy.

The committee has come to these conclusions with the benefit of shareholder feedback we have received. Namely, shareholders have supported our strategy, but they have noted that vesting of performance shares must reflect the broader shareholder experience over the cycle. They are particularly keen to see the financial resilience of the transition growth engines. We hope you will agree that using value-driven criteria for the outstanding awards and de-rating of strategic progress for future awards is an appropriate response to shareholder feedback received.

Overall, the sum of the several components that go into performance share vesting for the 2021-23 cycle was 75% of maximum. The committee believes that this outcome is reflective of performance during the period and therefore has not applied any further discretion.

Looking ahead to 2024

For 2024, we have reviewed the operation of the bonus and performance shares against our strategy and are proposing only modest changes, all consistent with our shareholder-approved remuneration policy.

Alignment with strategy

Sustainability performance

In 2023, we consulted with shareholders about changing the measurement of our progress in reducing greenhouse gas emissions to provide a direct link to bp's aim 1, to achieve net zero operations by 2050 or sooner.

In our annual bonus scorecard, instead of SER we will use a measure of operated carbon emissions. Unlike SER, operated carbon emissions is a measure recognized by stakeholders and thus allows comparability of our results with those of others in our industry. This measure covers the Scope 1 and 2 emissions reported under aim 1 (net zero operations) and will have the same weighting as SER previously did (15% of award).

It is our intent to measure and reward progressive improvements in operated carbon emissions performance both over the short and long term. We are therefore introducing this operated carbon emissions metric to our 2024-26 executive directors' incentive plan (EDIP) scorecard to better align with our strategic ambition of net zero by 2050 or sooner. This measure will be weighted at 15% and for reference, we will use 2019 as the baseline year (which is consistent with the baseline year for bp's aim 1).

Recognizing the transition growth engines

bp has aims to accelerate the growth in earnings from transition growth engines. Rather than picking business unit specific operating metrics (e.g. convenience margin, EV sales growth), we will measure and report on earnings growth overall in our transition growth engines. This measure should provide better visibility to shareholders as to the financial quality of our transition growth investment★ and focus our teams on ensuring that these new businesses can generate meaningful earnings over time. We will weight this metric at 10% in the annual bonus.

Focus on safety

A number of shareholders provided feedback in 2023 that we were not giving a meaningful enough message through bonus adjustments when fatalities occurred. We have carefully considered the comments and agree that we should modify our approach. Namely, if any workforce fatality occurs during the year, the committee will make it normal practice to adjust the overall bonus outcome downwards. The downward adjustment will vary based on the specific circumstances and will apply broadly across the organization. Notwithstanding this change, safety is an underpin to all of our plans and so we retain absolute discretion to reflect lapses in safety in remuneration outcomes.

Further details have been set out on **page 122**.

Alignment with stakeholders

Wider workforce

When reflecting on pay decisions in relation to the executive directors, the committee is mindful of the pay arrangements of the wider workforce. For 2024, the wider workforce will receive an average salary increase of 4.5% in the UK. Adjustments in other jurisdictions vary by local conditions. All bp employees in the UK earn at least the UK Living Wage.

We are aware that a number of bp's UK pensioners have asked bp management to consent to a trustee request to provide an additional discretionary increase that is over and above the 5% increase they have received under the scheme rules, to their pensions. Discretionary pension increases under bp's many pension schemes around the world are a matter for management. We do note that management made additional funding to the bp Helios Fund and the Retail Trust, which has enabled the trustees of those bodies to support pensioners who are most in need through a one-off grant.

★ See glossary on **page 373**

Shareholder engagement

In 2023, during the development of our directors' remuneration policy, we engaged extensively with our shareholders and the main proxy agencies. We discussed the company's strategy, their expectations in relation to executive pay, and in some cases, our approach to remuneration upon the departure of our former CEO. By letter and in individual conversations, we have engaged with our largest shareholders and proxy agencies on the proposed outcomes for 2023 and the implementation of our policy going forward.

Executive director changes

As announced on 12 September 2023, Bernard Looney resigned as CEO with immediate effect. The board triggered its emergency succession plan to ensure continuity in leadership, resulting in Murray Auchincloss's appointment as interim CEO with immediate effect. As you will have read in our disclosures elsewhere, the board undertook a robust and competitive executive succession process, ultimately resulting in the decision to appoint Murray Auchincloss as the permanent CEO on 17 January 2024. On 2 February 2024, Kate Thomson, who had been acting as interim CFO, was appointed as permanent CFO and became an executive director of the board.

CEO arrangements

Upon appointment as interim CEO, the committee agreed that Murray Auchincloss should receive base pay equal to that of his predecessor for 2023, but that his bonus would be based on a pro-rated salary rather than his new higher salary and that no additional equity grants would be made in the interim. His annual salary was therefore set at £1.45 million, reflecting his increased responsibility, and the competitive landscape.

Upon appointment as permanent CEO, Murray's salary remained unchanged at £1.45 million and he will not receive a salary increase for 2024. All elements of his remuneration will be in line with the shareholder-approved remuneration policy The details have been set out in full on **pages 119 to 120**.

CFO arrangements

Having acted as interim CFO since September 2023, Kate Thomson was appointed to the board and as permanent CFO on 2 February 2024.

Upon appointment, her base pay has been set at £800,000 and will not be reviewed until 1 April 2025. The committee believes it is appropriate that Kate's salary be set at a lower level than that of her predecessor, reflecting her limited experience in a board role. However, the committee will keep the CFO salary under review each year, with regard to performance in the role and market conditions. As such, it is possible that any future adjustments may exceed the percentage for the wider workforce for a period, subject to performance. All elements of Kate's new package are consistent with our remuneration policy.

Former CEO departure terms

In December 2023, the board determined that serious misconduct had occurred in relation to the former CEO. At that time, we disclosed the provisions of his separation. Full details of which are provided on **page 127**.

All remuneration decisions have been made in accordance with our shareholder-approved policy.

Concluding remarks

At the close of this year's AGM, I will depart the board of bp as my nine-year tenure concludes.

As I depart, I want to express my appreciation to my colleagues on this committee, the advisors and executives who support us in our deliberations – and to you, our shareholders, for your constructive feedback and candour. I am gratified that we have always come to agreement on the way forward, after what has often been vigorous and challenging discussion. I trust that 2024 will be no exception. The committee has remained true to the policy you approved and where we have used discretion, it has been thoughtfully undertaken. As always, we welcome your comments on the materials covered herein. One final time, I respectfully ask for your vote in favour of the resolution to approve the 2023 directors' remuneration report at the upcoming AGM.

Paula Rosput Reynolds
Committee chair
8 March 2024

Remuneration at a glance

Key performance highlights in 2023

$32.0bn

operating cash flow
Resilient financial performance

$20.9bn

net debt
Lowest level over past decade

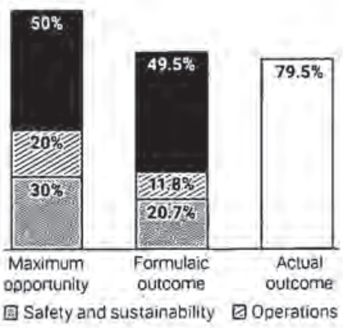
27.760¢

dividends paid per ordinary share
+21% increase vs. 2022

- Acquisition of TravelCenters of America
- 150% increase in energy sales volumes and 35% increase in EV charge points★
- Biogas supply volumes★ rose by 80% year on year
- LNG supply portfolio increased by over 20% to ~23mtpa (2022 19mtpa)

Pay outcomes in 2023

Annual bonus 2023



82% of maximum

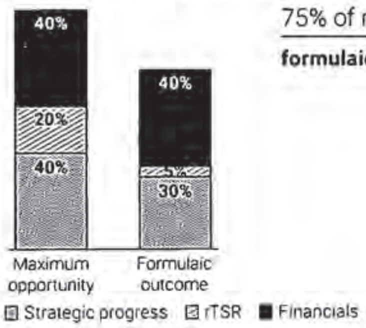
formulaic outcome

↓

79.5% of maximum*

actual outcome after exercise of discretion

Performance shares 2021-23



75% of maximum

formulaic outcome

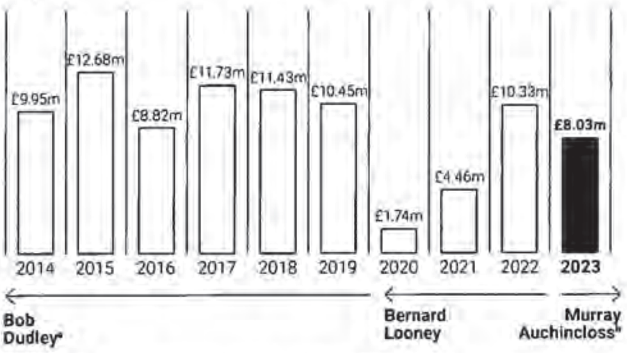
Application of discretion

The committee may exercise discretion in determining the outcomes for the annual bonus and performance shares, reflecting on the broader stakeholder experience during the performance period.

*For 2023, downward discretion was applied to the annual bonus and the formulaic outcome has been reduced by 5 points to 1.59 for all participants. Further details on the application of discretion have been set out on **page 115**.

Single figure history

10-year trend of remuneration



a Bob Dudley's single figure converted from USD to GBP at the relevant exchange rate.
b For 2023, the single figure for the CEO (Murray Auchincloss) has been shown in the chart. See **page 113** for further details on the former CEO's single figure for 2023.

Single figure for 2023

Target: £5.8m
Maximum: £10.1m

19%

Total fixed remuneration

81%

Total variable remuneration

Key

- 1. Salary and benefits
- 2. Cash allowance in lieu of pension
- 3. Annual bonus
- 4. Performance shares

Alignment with shareholders

Share ownership

Share ownership is a key means by which the interests of executive directors are aligned with those of shareholders. Murray exceeds the current policy requirement.

★ See glossary on **page 373**

Remuneration at a glance continued

Application of remuneration policy for 2024

Set out below is an illustration of how the remuneration policy will be implemented for 2024.

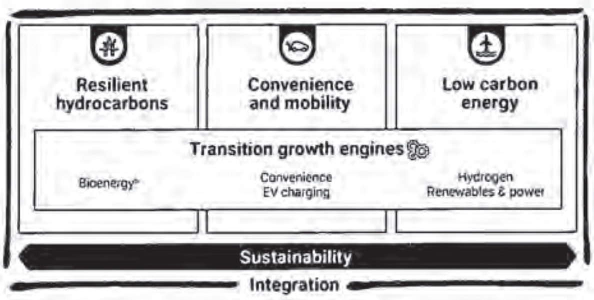
	2024–2030	
Fixed pay (salary, pension and benefits)	2024	• Upon appointment, the CEO and CFO's salaries were set at £1.45 million and £0.8 million respectively. • Salaries will remain unchanged in respect of 2024. This compares to an average increase of 4.5% for the UK wider workforce in 2024.
Annual bonus[a]	1-year performance period (2024); 3-year deferral period (2025–2027)	• CEO's max opportunity: 225% of salary. • CFO's max opportunity: 225% of salary. • For 2024, transition growth engines adjusted EBITDA % growth and operated carbon emissions have been introduced to the bonus scorecard **(see below)**.
Performance shares	3-year performance period (2024–2026); 3-year holding period (2027–2029)	• CEO's max opportunity: 500% of salary. • CFO's max opportunity: 450% of salary. • For 2024, cumulative reduction % in operated carbon emissions has been introduced to the performance shares scorecard **(see below)**.
Shareholding requirement	2024–2030	• In-employment and post-employment guidelines will continue to apply.

a Half the bonus is paid in cash, and half is deferred into bp shares for three years up until 'minimum shareholding requirement' is met. At this point, 67% is paid in cash and 33% is deferred into bp shares.

Alignment of 2024 variable remuneration with strategy

Each year, the committee aims to set a remuneration framework for executive directors that supports and incentivizes progress towards our strategy. For 2024 the performance measures in the annual bonus and performance shares scorecards have been refined slightly to further align with our strategy. Measures that have been introduced for 2024 have been marked with ▲ below. Further details on the rationale for their inclusion can be found on **pages 121 and 123**.

bp's strategy



Key focus

Our ambition: Net zero by 2050 or sooner

Financial frame

	Net zero by 2050 or sooner	Financial frame	Strategy
Annual bonus			
Safety and sustainability (30%)			
Tier 1 and tier 2 process safety events			●
Operated carbon emissions▲	●		●
Operations (20%)			
bp-operated reliability and availability		●	●
Transition growth engines adjusted EBITDA % growth▲		●	●
Financials (50%)			
Adjusted free cash flow ($bn)		●	
Earnings (adjusted EBITDA)		●	
Performance shares			
Cumulative reduction % in operated carbon emissions (15%)▲	●		●
rTSR (25%)		●	
ROACE (20%)		●	
Adjusted EBIDA per share CAGR (20%)		●	
Strategic progress (20%)			●

b Bioenergy includes customer-facing and midstream biofuels activities that form part of convenience and mobility.

Engaging with our workforce

At bp, we believe that having a diverse and engaged workforce is critical for us to deliver our strategy. We aim to create an open dialogue among our board, senior management and the wider workforce – including on topics such as remuneration (see section below).

During 2023, the committee was particularly mindful of the higher cost of living and the challenges inflation presents for many. bp has introduced a range of initiatives to help improve the wellbeing of our colleagues.

We have continued to review our pay arrangements in our retail businesses and are committed to ensuring that our offering is fair. This includes a commitment to increase our hourly wage for ~6,000 UK staff from 1 April 2024 in line with the Real Living Wage.

The results of these initiatives are showcased in our recent 'Pulse annual' employee survey results, where we were pleased to see that all our wellbeing scores improved year on year. Highlights are set out below.

Workforce engagement

During the year, the committee continued its direct engagement sessions with the wider workforce through a number of forums. The intention of the sessions was to better understand the views of our workforce and to encourage an open discussion on relevant matters. More detail on bp's workforce engagement agenda can be found on **page 92**.

With regards to remuneration, a session was held with recent joiners at management level to discuss their initial views on bp's culture and remuneration models (including executive pay). The selected participants came from different parts of the business, from energy to consumer to technology, and represented a diverse group. Without exception, they expressed support for bp's strategy.

There was a shared sense that the culture at bp was welcoming and open, with colleagues wanting to drive success. Our transition to an integrated energy company was frequently cited as a reason for joining the organization. While commentary on our remuneration models was broadly positive, we received feedback that there could be greater simplicity in the structure of incentives.

As ever, we were impressed by our colleagues' readiness to share open and honest feedback with board members and will continue to reflect on our workforce views as we consider executive pay decisions.

Enhance Wellbeing

Our **aim 15** is to enhance the health and wellbeing of our employees, contractors and local communities. This is achieved through the innovative programmes, partnerships and offers at bp.

Physical and mental wellbeing

Objective: Support employees to proactively improve their physical and mental health.

- Achieved menopause-friendly employee accreditation from 2023 for the UK. This included launching new guidance, e-learning modules for colleagues and leaders and collaborating with our external providers.
- In 2023, bp provided more paid leave and enhanced medical coverage in several countries – including Singapore, Malaysia, India and Hungary.
- In the process of designing a new global mental health education programmes for our wider workforce called 'Healthy Minds'.
- Following the success of rolling out free membership for the Headspace app, around 9,000 employees enrolled globally.
- For the first time, 'Thrive Together' our wellbeing challenge was available globally – inspiring employees to take positive action and enhance their wellbeing.

~69,000
employees with access to financial wellbeing support

26%
increase in our global wellbeing platform usage

~9,000
employees enrolled with Headspace

~180,000
views of our global wellbeing guides

Financial wellbeing

Objective: Alleviate the impact of money concerns on overall wellbeing.

- During the year, we hosted a series of global events on financial wellbeing for our below board employees. The sessions aimed to provide practical tips on how to manage day-to-day finances and signposted the financial support systems in place at bp.
- These events were made available to all site-based employees globally, with relevant material being extended to our retail and non-site-based employees.
- Introduced financial coaching sessions to support colleagues in the UK with managing their personal finances. Following this success, we plan to roll-out a global toolkit for financial wellbeing in 2024.
- In the UK, all new joiners are entitled to a free 1:1 financial coaching session with other colleagues receiving a discounted service.

Focus on retail

- Accredited as a Living Wage Employer in the UK since 2020 – first major energy, mobility and convenience employer to achieve this.
- Increased the hourly wages of ~6,000 staff as part of an £8 million annual investment in pay which is effective 1 April 2024. In practice, this will mean that staff nationwide will receive over £2,000 extra a year.
- Continue to ensure our retail employees are offered a competitive benefits package, which includes discounted food and shopping and paid breaks (worth ~£2,500 a year).

★ See glossary on **page 373**

Directors' remuneration report continued

Wider workforce in 2023

Element	Policy features for the wider workforce	Comparison with executive director remuneration
Salary	Salary is the basis for a competitive total reward package for all employees, and we conduct an annual salary review for all non-unionized employees. In setting pay budgets each year, we assess how employee pay is currently positioned relative to market rates, wage inflation, forecasts, and business context related to such things as growth plans, workforce turnover and affordability. For 2024, most salaried employees will receive a base salary increase (effective 1 April 2024). In the UK, the average pay increase has been set at 4.5%.	The salaries of our executive directors form the basis of their total remuneration, and we review these salaries annually along the same timelines as the wider workforce. Salary increases for executive directors will typically be at or below the salary review budgets set for our wider workforce. In specific circumstances, salary increases may be awarded above the workforce rate and will have regard for the individual's performance in the role and market competitiveness. As the executive directors were only appointed earlier this year, there will be no further salary increases for either of them as part of the annual pay review for 2024.
Pensions and benefits	We operate different pension plans by location and for those parts of our business where market practice is markedly different, e.g. our retail business. For our population of non-retail employees in the UK, covering 57% of the UK workforce, we provide a flexible cash benefits allowance of 20% of salary. In the UK, our hourly retail employees, the majority of whom are part-time, are eligible to participate in the National Employment Savings Trust (NEST) where we make contributions and all proceeds are portable with the employee.	Executive directors, both current and future appointments, are to receive a cash allowance in lieu of pension aligned with the wider workforce (currently 20% of salary). Other than the provisions of car, security and tax preparation related benefits, benefit packages are broadly aligned with those of other employees in the UK.
Annual bonus	More than half of the eligible global workforce participate in an annual cash bonus plan that multiplies a grade-based target bonus amount by a bp performance factor in the range 0 to 2. In 2022, the bonus plan was enhanced to include a stronger link to individual performance. Select participants may be nominated to receive an uplift to their bonus outcome, reflecting their contribution and impact. We operate different bonus plans for those distinct parts of our business where market practice is markedly different, such as our trading business.	The annual bonus for the executive directors is linked to the same bp performance measures and bp performance factor as those for the wider workforce. Executive directors are not entitled to a bonus uplift linked to individual performance.
Performance shares	We operate share plans with three-year vesting for all our senior leaders. Opportunity varies across two broad tiers: group leaders (approximately 300) and senior-level leaders (approximately 4,500). For the group leader population, we operate a hybrid scheme with a mixture of restricted shares and performance shares awarded. The performance shares are aligned to bp's performance outcomes – similar to the scorecard used for executive directors. All employees are eligible to receive ad hoc share awards in exceptional circumstances. bp also operates an award-winning global ShareMatch programme which is available to over 17,500 employees in 47 countries.	Performance shares for our executive directors are assessed using a bp performance scorecard, similar to the scorecard used for the group leader population. There are no restricted shares for executive directors. Executive directors' performance share awards are subject to an additional three-year holding period post-vesting. Executive directors are also expected to build a minimum level of shareholding equal to 5x salary for the CEO and 4.5x salary for the CFO. This minimum holding cannot be sold until two years post-employment.
Recognition	energize!, our global recognition platform is open to all employees for peer-to-peer recognition. Recognition may be in the form of a 'thank you' or points that can be spent on a catalogue of products. We also operate a spot bonus programme where individuals or teams can be nominated to receive a one-off cash award to recognize their achievements. Senior leaders and our two executive directors fully participate in the programmes (typically by giving recognition). They may receive non-financial recognition only through energize!.	
Wellbeing	All employees have access to mental health support via our employee assistance programme. In addition, Thrive@bp – our global wellbeing platform – is open to all employees and provides access to mental, physical and financial wellbeing support. In a number of countries, employees have access to a personal wellbeing fund – a sum of money that can be spent on wellbeing initiatives. In 2023, this was equal to £1,500 per employee per annum, in the UK.	

Executive directors' pay for 2023

Single figure table – executive directors (audited)[a]

	Murray Auchincloss[b] thousand 2023	**Bernard Looney[b] thousand 2023**	Murray Auchincloss thousand 2022	Bernard Looney thousand 2022
Salary	**£1,015**	**£996**	£782	£1,372
Benefits	**£338**	**£30**	£88	£75
Cash allowance in lieu of pension	**£190**	**£149**	£117	£206
Annual bonus[c]	**£1,839**	**£0**	£1,404	£2,366
Performance shares[d]	**£4,652**	**£0**	£3,037	£6,313
Total remuneration	**£8,034**	**£1,175**	£5,429	£10,331
Total fixed remuneration	**£1,543**	**£1,175**	£988	£1,653
Total variable remuneration[e]	**£6,491**	**£0**	£4,441	£8,678
Application of malus and clawback[f]		**£(2,979)**		
Total remuneration (incl. malus and clawback)[g]		**£(1,804)**		

a Due to rounding, the total may not agree exactly with the sum of the component parts.
b As announced on 12 September 2023, Bernard Looney resigned as CEO and stepped down from the board with immediate effect. For 2023, the figures stated in the table reflect the time spent in his role as CEO (1 January 2023 to 12 September 2023). Murray Auchincloss was appointed as interim CEO on 12 September 2023, having previously been in position as CFO.
c Annual bonus is subject to deferral into shares for three years at a rate of 33%, in line with the 2023 remuneration policy approved by shareholders.
d The performance share figure for 2023 has been calculated using the average share price in the last three months of 2023 of £4.93 and includes notional dividends accrued up to 16 February 2024. For 2022, the performance shares have been restated to reflect the share price on the date of vesting of £4.86 and actual dividends received.
e In respect of 2023, Bernard Looney did not receive any variable pay awards. He was not entitled to any annual bonus in respect of the financial year and his 2021-23 EDIP award lapsed in full.
f In line with regulatory requirements for reporting single figure outcomes, the table sets out the value of the malus and clawback applied to Bernard Looney's variable pay awards in respect of awards which have previously been reported in prior year single figure tables. These values are in line with the press release on 13 December 2023 and further detail can be found on **page 127**. The value for awards subject to clawback has been shown on a net-of-tax basis as per bp's clawback policy.
g Following the board's decision on 13 December 2023, Bernard Looney's outstanding 2022-24 EDIP and 2023-25 EDIP awards also lapsed in full. These have not been included in the table as they have not previously been reported in single figure tables as performance periods are still in-flight. For reference, the maximum value of both these awards would have been £14,667k when calculated in line with the press release on 13 December 2023. Further details can be found on **page 127**.

Overview of single figure outcomes

Salary

On 12 September 2023, Murray Auchincloss was appointed as CEO on an interim basis. The committee agreed that his remuneration package should be broadly in line with that of his predecessor and his base pay was set at £1.45 million.

Murray has been an advocate of bp's strategy to transition to an integrated energy company and remains focused on delivering exceptional performance – this was clearly evident when he undertook the interim CEO role. The committee believes it was in our shareholders' interest that Murray's remuneration was set at a level that appropriately reflected the responsibility and scope of the role, while motivating and retaining him during this interim period, thus ensuring a continued focus on delivering our long-term strategy. The extensive external search we undertook confirmed our view that a base pay of £1.45 million was competitive to lead a company of bp's size, business complexity and strategic ambition.

Benefits

Executive directors received car-related benefits, coverage of tax return preparation, security assistance, health and life insurance and medical benefits.

Transitional changes to the car-related benefit provided to Murray Auchincloss, as approved by the committee, is the primary reason for the increase in the value of taxable benefits compared with 2022. The cost of this benefit is expected to fall in 2024.

Cash allowance in lieu of pension

Upon appointment to the board in 2020, Murray's cash allowance in lieu of pension was aligned to the flexible benefit allowance for the majority of the wider UK workforce at that time (15% of salary).

In the 2023 directors' remuneration policy, the cash allowance in lieu of pension for executive directors was changed to 20% of salary (in line with the wider workforce). This amendment to our policy was supported by shareholders and approved at the 2023 AGM with a vote of 94%. From the 2023 AGM, Murray's cash allowance was therefore adjusted to 20% of salary. As disclosed in last year's report, Bernard Looney's allowance remained unchanged at 15% of salary.

★ See glossary on **page 373**

Annual bonus

The committee has considered the approach that should be taken in relation to Murray's annual bonus award for 2023. In line with our remuneration policy, awards are typically calculated using salary as at year-end. However, given Murray's relatively short tenure as interim CEO during the performance period, the committee felt it would be appropriate to base his award on a pro-rated salary.

In relation to the deferral requirement, the committee reviewed Murray's shareholding during the year to assess if the minimum shareholding requirement had been met. Given that his bonus award is based on a pro-rated salary, it was considered appropriate to calculate his shareholding on the same basis. As of 16 February 2024, the CEO achieved a shareholding of 6.4x salary (based on a pro-rated salary). This is above the minimum shareholding requirement for the CEO of 5x salary and his 2023 award will therefore be subject to a deferral rate of 33%.

2023 annual bonus scorecard and outcome

For 2023, the committee assessed performance against a bonus scorecard of seven measures across three categories: safety and sustainability, operations and financials. These measures align with our strategy (see **page 12**) and were set out under the terms of our 2023 policy.

Safety and sustainability 0.41 + Operations 0.24 + Financials 0.99 = Formulaic score 1.64 out of 2.0

Measures		**Weighting**	**Threshold (0)**	**Target (1)**	**Maximum (2)**	**Outcome**
Safety and sustainability (30% weight)	Tier 1 process safety events★	15%	12 0	10 0.075	8 0.15	39 (tier 1: 9, tier 2: 30)
	Tier 2 process safety events★		47 0	39 0.075	31 0.15	
	Sustainable emissions reductions★ (million tonnes)	15%	<7.77 0	7.97 0.15	8.27 0.3	7.973
Operations (20% weight)	bp-operated reliability and availability	10%	94.5% 0	95.5% 0.1	96.4% 0.2	95.7%
	Convenience & EV gross margin % growth	10%	4% 0	10% 0.1	16% 0.2	10.6%
Financials (50% weight)	Adjusted free cash flow★	25%	$12.6bn 0	$13.6bn 0.25	$14.6bn 0.5	$15.1bn
	Adjusted EBITDA	25%	$40.7bn 0	$42.2bn 0.25	$43.7bn 0.5	$43.67bn[a]
Formulaic score						**1.64 out of 2.0**

Formulaic scorecard outcome **1.64 out of 2.00** → Committee judgement for fatalities **- 0.05** → Final scorecard outcome **1.59 out of 2.00** → **79.5% of maximum**

a Adjusted EBITDA for bonus calculation purposes ($43.67bn) differs from the figure reported elsewhere in the bp Annual Report and Form 20-F 2023 ($43.71bn) because of accounting adjustments made after the committee's bonus outcome decisions.

Safety performance as measured by tier 1 and 2 process safety events, was strong with the mechanical outcome achieving between target and maximum performance. The committee's review of safety performance is detailed below and in the safety and sustainability committee (S&SC) report on **page 103**.

Sustainable emissions reductions (SER) of 7.973mte cumulative (2023 vs. 2017) met target for the fourth year running, demonstrating consistent progress against our aim 1. At the start of the year bp identified opportunities for emission reductions based on planned activity totalling 704kt in 2023. However, an SER target of 900kt was set to continue embedding a net zero mindset and ownership of emissions performance across the operating entities. This approach led our sites to review existing activity sets and identify projects with SER potential that were not in existing plans. Key contributions across bp's portfolio included Whiting and Cherry Point refineries switching to low carbon power (255kt), bpx energy projects including electrification, vapour recovery and centralized processing in the Permian and Eagle Ford (240 kt), and a focus on flare system and practices improvements across production sites (102kt).

Reliability and availability is a measure of bp-operated refining availability and bp-operated plant reliability with a performance outcome of 95.7% – slightly above target. Refining availability strengthened year-on-year to 96.1% (94.5% in 2022). Plant reliability was below the target outcome at 95.0%.

Convenience & EV gross margin % growth (v. 2022) was above target with an outcome of 10.6%. Over the period, our EV energy sales grew by 150% and our convenience gross margin, excluding TravelCenters of America and adjusted for other portfolio changes at constant foreign exchange, was up by 9%.

Financial performance, as measured by **adjusted free cash flow and adjusted EBITDA**, was strong. bp generated adjusted free cash flow of $15.1 billion, which resulted in the maximum outcome. Similarly, adjusted EBITDA performance was strong with an outcome of $43.67 billion, slightly below our maximum target. Our targets are environment-adjusted at year end and the revised targets for adjusted free cash flow and adjusted EBITDA were $13.6 billion and $42.2 billion respectively.

Overall outcome

The formulaic score for the 2023 annual bonus was 1.64 out of 2.00 (82% of maximum).

The committee, advised by the S&SC, considered the circumstances of all of the fatalities and resolved to apply a downward adjustment to the annual bonus for one of the fatalities (see 'A focus on safety' below).

The formulaic score has therefore been reduced by 5 points from 1.64 to 1.59 (79.5% of maximum) for all plan participants.

A focus on safety

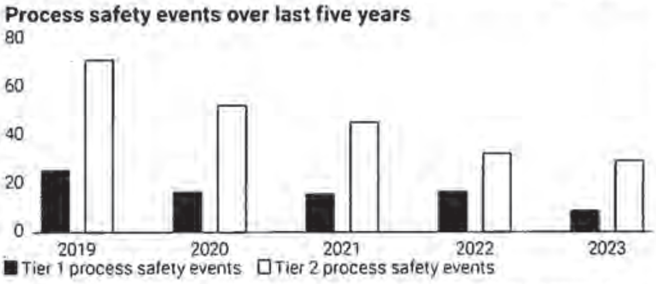
Safety comes first at bp and avoiding safety incidents within the workforce is paramount. Our goal is to eliminate tier 1 process safety events, fatalities and life-changing injuries.

Each year the committee, with advice from the S&SC, reviews the formulaic outcome of the annual bonus scorecard against broader contextual factors when determining the final performance outcome. As part of this holistic review, careful consideration is given to annual and long-term safety performance, any major safety incidents and any workforce fatalities during the year.

Process safety performance

To improve the focus on tier 1 process safety events, the committee determined that for the 2023 annual bonus scorecard tier 1 and tier 2 events would be measured independently rather than a combined measure. The committee is pleased to report that both tier 1 and tier 2 process safety events – particularly tier 1 – were lower than prior years.

Process safety events over last five years



The overall strong process safety performance resulted in a score of 87.5% of maximum for this element of the annual bonus scorecard. With the overall trend in process safety performance over time being positive, the committee felt this outcome was fair.

Impact of fatalities

In 2023, three people lost their lives while working for bp – a contractor within bpx energy and two employees from our newly acquired TravelCenters of America business. Our thoughts, as ever, are with their family, friends and co-workers.

Alongside the S&SC, the committee reflected on the fatalities that occurred during the year. While the fatality in bpx energy was within bp's ultimate responsibility, the incident was contractor led and under a third party management system. However, after careful consideration the committee concluded that the fatality should directly impact the annual bonus.

TravelCenters of America was acquired mid 2023 and is not fully integrated into bp – either from a safety culture or remuneration perspective (employees there do not participate in the bp annual cash bonus plan). The committee has therefore determined that applying a discretionary adjustment to all bp employees for the fatalities in TravelCenters of America would not be appropriate at this time. This is consistent with our approach to target setting more generally for recent acquisitions, where a transition period normally applies. Details on the TravelCenters of America acquisition are provided on **page 20**.

Reflective of the fatality in our bpx energy business, the overall formulaic outcome of 1.64 has been reduced by 5 points (3%), resulting in an overall performance outcome of 1.59. This adjustment has been applied to all participants of the bp annual cash bonus plan to emphasize our collective responsibility with regard to safety.

We hope to see fatalities eliminated. Nevertheless, in response to shareholder feedback, a framework has been developed to guide the committee's decisions regarding the impact of fatalities on incentive outcomes. This new framework will formally take effect from 2024 (the committee has applied its principles when determining 2023 outcomes). Further detail on the framework has been provided in the implementation section of this report (see **page 122**).

2021-23 performance share plan scorecard and outcome

2021-23 performance share awards were granted under the executive directors' incentive plan (EDIP). The scorecard for this cycle consists of relative total shareholder return (rTSR) (20% weighting), return on average capital employed (ROACE) (20% weighting), adjusted EBIDA per share CAGR (20% weighting) and strategic progress (40% weighting).

2021-23 performance share plan scorecard (audited)

These measures were set under the terms of our 2020 policy.

rTSR		ROACE		Adjusted EBIDA per share CAGR		Strategic progress		Formulaic vesting
5.0%	+	20.0%	+	20.0%	+	30.0%	=	75.0%

Measures		Weighting	Threshold performance	Maximum performance	Outcome
rTSR (20% weight)	rTSR	20.0%	Fourth	First	Fourth
				Outcome	**5.0%**
Financials (40% weight)	ROACE (average 2021-23)	20.0%	9.7%	10.7%	20.6%
	Adjusted EBIDA per share CAGR	20.0%	4.6%	6.6%	15.8%
				Outcome	**40.0%**
Strategic progress (40% weight)	Deliver value through resilient hydrocarbon business	13.3%	Qualitative and quantitative assessment by the committee, see **pages 117 to 118**		• bp's hydrocarbon business performed well, with underlying measures on-track to 2025 targets. • bp met its first goal under aim 4 (deployed methane measurement).
	Demonstrate track record, scale and value in low carbon energy	13.3%			• Strong performance against renewable pipeline (GW) objectives, with pipeline more than doubling over the period. • Currently tracking behind 2025 target for the developed renewables measure.
	Accelerate growth in convenience and mobility	13.3%			• On-track to achieve convenience margin★ growth and strategic convenience sites★ objectives. • Performance in *Castrol* tracking lower than expected.
				Outcome	**30.0%**
Formulaic vesting					**75.0% out of 100.0%**

Formulaic vesting	Underpin	Final vesting after committee judgement
75.0%	Underpin: Committee review of absolute shareholder returns, long-term safety and environmental performance, low carbon and climate change considerations. **No adjustment**	75.0%

Relative TSR

During the performance period, bp's rTSR performance placed it fourth out of eight in the comparator group which resulted in 25% of this measure vesting.

Financials

Performance for ROACE, at 20.6% over the period, was strong and resulted in maximum vesting of this measure. Similarly, adjusted EBIDA per share CAGR performance was strong, achieving 15.8%. As part of the review of outcomes, the committee considers the impact of the trading environment with respect to ROACE outcomes, and in respect of adjusted EBIDA per share CAGR the committee review share buyback activity outside of plan during the performance period. It determined that no further adjustments should be made for the 2021-23 cycle.

Strategic progress

Overview of strategic progress

Strategic progress is determined using a balance of quantitative and qualitative judgement against bp's three strategic pillars: to deliver value through a resilient hydrocarbon business; to demonstrate track record, scale and value in low carbon energy, and; to accelerate growth in convenience and mobility. The committee assesses performance against objectives within these pillars and takes into account the broader stakeholder experience during the performance period.

During our review of strategic progress, the committee was mindful of bp's mid-cycle announcement in February 2023 updating its transition strategy. These updates were strongly supported by the board and the committee.

On balance, the committee determined that the strategic progress measure should result in 75% of maximum vesting.

1. Deliver value through a resilient hydrocarbon business

Unit production costs

Unit production costs★ have reduced by 15% over the three-year period, from $6.82/boe in 2021 to $5.78/boe in 2023. This currently places bp ahead of our 2025 target of $6.00/boe by 2025.

This performance has largely been driven by portfolio high grading and efficiency gains. Looking ahead to 2025, the aim is to maintain a production cost at ~$6.00/boe – which is ambitious given the challenges in the current market.

Plant reliability

For 2023, hydrocarbon plant reliability was 95.0% which was a slight decline from our 2022 high-point of 96.0%. But, bp remains on track to reach its 2025 target and continues to be focused on delivering major projects★ with higher reliability.

Refining availability

Refining availability was 96.1% in 2023, compared to 94.5% in 2022 and slightly above the 2025 target of ~96%. During the period, we have seen strong performance across the sites with focus on continuously enhancing availability through ongoing improvement initiatives and safely delivering turnaround events.

	2021	2022	2023	**2025 target**
Upstream unit production costs ($/boe)	6.82	6.07	5.78	**6.0**
bp-operated upstream plant reliability (%)	94.0	96.0	95.0	**96.0**
bp-operated refining availability (%)	94.8	94.5	96.1	**96.0**

2. Demonstrate track record, scale and value in low carbon energy

During the year, bp has continued to make progress against our low carbon energy strategic pillar. Focus remains on the transition growth engines as bp works towards achieving its 2025 targets.

Developed renewables to FID★

During the performance period we have delivered 2.9GW to FID (bp net), with main contributions from Lightsource bp (50% JV) and the 100% bp solar pipeline (Cygnus). Driven by supply chain challenges in the US and the principle of value over volume, Lightsource bp has reduced the number of delivered sanctioned projects in 2023. In US offshore wind, given challenging macroeconomic conditions we have restructured our Beacon and Empire projects taking full ownership of Beacon and transferring Empire ownership to Equinor. Slower pace in solar FIDs and US restructuring in relation to offshore wind resulted in slower GW to FID progression.

Renewables pipeline★

bp has materially scaled the renewables businesses with the pipeline of projects increasing from 10.9GW (end of 2020) to 58.3GW (end of 2023). bp's offshore wind organization pipeline was built from a zero base and the pipeline has doubled in recent years – with a total potential generating capacity of 4GW in Germany.

	2021	2022	2023	**2025 target**
Developed renewables to FID (GW)	4.4	5.8	6.2	**20**
Renewables pipeline (GW)	23.1	37.2	58.3	

3. Accelerate growth in convenience and mobility

Convenience gross margin growth

For 2021-23, convenience gross margin growth was an average of 9% and remains on track to achieve the 2025 target of 10%.

During the period, bp extended the convenience partnership with Lekkerland and Auchan to deliver services at retail sites in Germany and Poland.

Strategic convenience sites

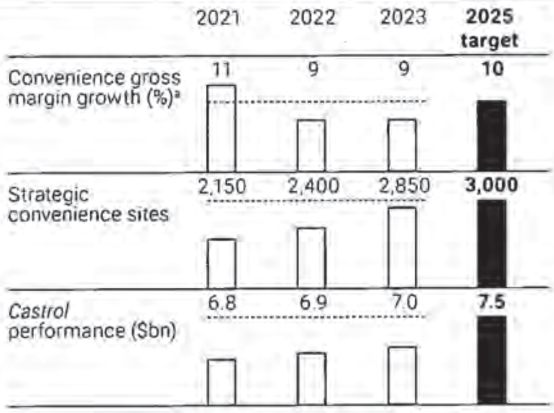
Strategic convenience sites are on track to exceed the 2025 target of 3,000 sites. This has been supported by taking full ownership of *Thorntons* in 2021 and the acquisition of TravelCenters of America in 2023, which added around 290 sites.

Castrol performance

During the period, *Castrol* has strengthened its market leading position in EV fluids. For instance, three out of four of the world's major vehicle manufacturers use *Castrol ON* products as part of their factor refill.

This success has been supported by investments in our technology centres, e.g. a new EV laboratory in Shanghai, China and a new laboratory in New Jersey, US.

However, performance to date is tracking lower than the 2025 targets. This is partly due to the challenging market environment.



Approach to outstanding awards

Having reflected on our approach to assessing strategic progress as part of the EDIP scorecard, the committee intends to judge this measure primarily through value-driven criteria for outstanding awards. This evaluation will include consideration of the financial performance of the transition growth engines, which has been raised as a key indicator of our strategic progress by shareholders in our recent consultation.

It is also to be noted that for 2024, the strategic progress measure is to be weighted at 20% of the award (previously 25%) while relative TSR will increase from 20% to 25%. For further details on the implementation of our policy for 2024, please refer to **pages 119 to 120**.

Other vesting considerations

Along with the results from the scorecard measures, the committee considers an 'underpin' to the formulaic outcome in order to determine the final vesting percentage. The underpin broadens our performance assessment, allowing us to consider vesting outcomes with overall alignment to absolute shareholder returns, environmental and safety factors and progress in low carbon and climate change matters. Where relevant, we take input from the safety and sustainability committee and the audit committee to deepen and enhance our perspective.

Windfall gains: As part of this holistic review, the committee also considered potential 'windfall gains'. Last year, the committee applied a downward adjustment to the 2020-22 performance share award in response to the fall in share price of 40% from the prior year's grant. That adjustment was viewed as extraordinary given the pandemic-related circumstances and was not intended to be embedded into the policy. For 2021-23, the grant price was ~4% lower than the share price used for the prior year grant. Therefore, an adjustment for windfall gains was not deemed appropriate for this cycle.

Having considered the above, the committee concluded that the vesting outcome was suitably reflective of the company's underlying performance and the experience of stakeholders overall. The committee therefore agreed it was not necessary to apply discretion to the out-turns and approved the formulaic vesting of 75% for the 2021-23 performance share awards. This decision yields the outcomes shown in the table below. The scorecard detail is shown on **page 116**.

2021-23 performance share plan outcome (audited)

	Shares awarded	Unvested shares following application of performance factor	Value of unvested shares following application of performance factor	Impact of share price change[b]
Murray Auchincloss	1,122,009	943,565	£4,651,775	£1,811,645

a Adjusted for other portfolio changes and excludes TravelCenters of America.

b These values reflect the impact of the increase in share price since grant related to the number of shares which are no longer subject to performance conditions, including notional dividends accrued up to 16 February 2024. The value of unvested shares not subject to performance conditions reflects the share price changes all shareholders have experienced over the three-year period. For this 2021-23 award cycle, the original grant was calculated based on ordinary share price of £3.01, while the average share price in 4Q 2023 was £4.93. Consequently, the share price gain has increased the initial face value of these awards by approximately 64%.

Policy implementation for 2024

The current remuneration policy was approved by shareholders at the 2023 annual general meeting on 27 April 2023. The full policy is displayed on the company's website at **bp.com/remuneration**. The table below shows how the remuneration policy will be implemented in 2024, alongside a summary of key features.

Element	Policy feature	2024 implementation
Salary	To provide fixed remuneration to reflect the scale and complexity of both the business and the role, and to be competitive with the external market. When setting salaries, the committee considers practice in other oil and gas majors as well as European and US companies of a similar size, geographic spread and business dynamic to bp. Percentage increases for executive directors will not exceed that for the wider workforce, other than in specific circumstances identified by the committee (e.g. in response to a substantial change in responsibilities). Salaries are normally set in the home currency of the executive director and are reviewed annually. They may be reviewed at other times where appropriate.	· Upon appointment to their respective roles, the CEO and CFO's salaries were set as follows: – Murray Auchincloss (CEO): £1,450,000 – Kate Thomson (CFO): £800,000 · Given their recent appointments, executive directors will not receive an increase in respect of 2024 as part of our annual salary review. · The average increase to our UK salaried staff effective from 1 April 2024, our annual salary review date, will be 4.5%.
Pensions and benefits	Executive directors normally participate in the company retirement plans that operate in their home country. New appointees from within the bp group retain previously accrued benefits related to service prior to appointment as executive director. For their service as a director, cash allowance in lieu of pension will be up to 20% of base salary. For future appointments, the committee will carefully review any retirement benefits to be granted to a new director, taking account of retirement policies across the wider group and any arrangements currently in place.	· Murray and Kate's cash allowance in lieu of pension is 20% of base pay (in line with the wider workforce). · Prior to their appointment as executive directors, Murray received a US deferred pension and Kate received a UK deferred pension. No further value is accrued under either plan. · Benefits will remain unchanged for 2024 and include car-related provisions, security assistance, insurance and medical cover.
Annual bonus	Bonus is measured against an annual scorecard. The committee holds discretion to choose the specific measures and the relative weightings adopted in the annual scorecard, to reflect the annual plan as agreed with the board. Numeric scales are set for each measure, to score outcomes relative to targets. A scorecard outcome of 1.0 reflects the target outcome and 2.0 is the maximum outcome. Target bonus is 112.5% of salary, and maximum bonus is 225% of salary. Half the bonus is paid in cash, and half is deferred into bp shares for three years up until the 'minimum shareholding requirement' is met. At this point, 67% is paid in cash and 33% is paid in bp shares. Dividends (or equivalents, including the value of any reinvestment) may accrue in respect of any deferred shares. Awards are subject to operationally robust and effective malus and clawback provisions as described below.	· For 2024, our scorecard categories will remain unchanged and will be assessed against the following: safety and sustainability (30%), operations (20%), and financials (50%). · We intend to make two changes to performance measures for 2024: – Introduce a more holistic measure focused on growth in our transition growth engines financial delivery (transition growth engines adjusted EBITDA % growth), in place of the convenience & EV margin growth measure. – Replace our sustainable emissions reductions measure with operated carbon emissions to directly align with our net zero ambition. · See **page 121** for further details on measures for the 2024 annual bonus. · From 2024, we are introducing a framework to help guide decisions on adjustments to the bonus outcome in relation to fatalities. Further detail has been provided on **page 122**.

Element	Policy feature	2024 implementation
Performance shares	Performance shares are granted with a three-year performance period, measured against a scorecard. The committee holds discretion to choose the specific measures and the relative weightings adopted in the scorecard, to ensure they are focused on the near-term priorities for delivering the bp strategy in the interests of shareholders. Annual grants are 500% of salary for the CEO, and 450% of salary for any other executive director. Awards will vest in proportion to the outcomes measured through the performance scorecard, subject to any adjustment by the committee.	• For our 2024-26 cycle, the scorecard categories will remain unchanged from the 2023-25 cycle, although we have amended the weightings. Performance will be assessed against rTSR (25%), ROACE (20%), adjusted EBIDA per share CAGR (20%), ESG (15%) and strategic progress (20%). The award will continue to be subject to an underpin that takes into consideration in-year safety outcomes and long-term trends in safety outcomes over the performance period. • The weighting of strategic progress has been decreased from 25% to 20%, reflecting feedback from shareholders, and relative TSR will be increased from 20% to 25% of the overall award. • Under the ESG measure, we are proposing a cumulative reduction % in operated carbon emissions to better align with our strategic ambitions (e.g. aim 1 – net zero by 2050 or sooner). • The 2024-26 awards will be granted based on the average closing share price of each calendar day in the 90-day period ending on the date of bp's 2024 annual general meeting. • Any shares that vest will be subject to a three-year post-vesting holding period. • Awards are subject to operationally robust and effective malus and clawback provisions as described below.
Shareholding requirement	CEO to build a shareholding of at least five times salary, and other executive directors four and a half times salary, within five years of appointment. Executive directors are required to maintain that level for at least two years post-employment.	• Murray's shareholding has reached 6.4 times pro-rated salary, above his minimum shareholding requirement. See **page 125** for further details. • Kate's shareholding has reached 2.1 times salary. Over the next five years, to 2029, Kate will work towards reaching her minimum shareholding requirement of 4.5 times of salary.
Malus and clawback	Operationally robust and effective malus and clawback provisions apply to our incentive awards. Malus provisions may be applied where there is: a material safety or environmental failure; an incorrect award outcome due to miscalculation or incorrect information; a restatement due to financial reporting failure or misstatement of audited results; material misconduct; or other exceptional circumstances that the committee considers similar in nature. Clawback provisions may apply where there is: an incorrect outcome due to miscalculation or incorrect information; a restatement due to financial reporting failure or misstatement of audited results; or material misconduct.	
Committee flexibility	The committee has discretion to adjust performance measures and weightings, and to revise the peer group for the rTSR measure. This discretion allows appropriate re-alignment, throughout the policy term, for changes in the annual plan and for the anticipated evolution of the low carbon business environment. The committee also holds discretion in determining the outcomes for annual bonus and performance shares, allowing them to take broad views on alignment with shareholder experience, environmental, societal and other relevant considerations e.g. portfolio changes.	

Salary

As announced on 17 January 2024, Murray Auchincloss was appointed as CEO with immediate effect and his base pay was set at £1.45m (in line with his predecessor). As part of the search process for a new CEO, external and internal candidates were considered. During this process, the committee became acutely aware of the challenges of competing in the global talent market (particularly in the US). We also reflected on the nature of the CEO role, which is inherently complex as we continue to drive our strategic transformation. On balance, our market positioning is considered appropriate and suitably reflective of the role.

Kate Thomson was appointed to the board and as CFO on 2 February 2024. Her base pay has been set at £800,000 (lower than her predecessor). The committee felt this was appropriate, balancing her limited experience as a board member and CFO of a FTSE 20 company, with her market positioning and with her proven capability within bp. We will continue to review her salary as she develops within the role, with regard to performance and market competitiveness. As such, adjustments in future years may exceed the percentage accorded the wider workforce for a period.

For 2024, Murray and Kate will not receive a salary increase as part of our annual pay review. For reference, the average wider workforce increase will be 4.5% in the UK.

Measures for the 2024 annual bonus

For 2024, two new measures are being introduced to the scorecard to reflect our strategic priorities for the year – operated carbon emissions and transition growth engines adjusted EBITDA % growth.

We are replacing our sustainable emissions reductions (SER) measure with operated carbon emissions to better align with our aim 1 – net zero operations by 2050 or sooner. This measure incorporates all operated emissions (Scope 1 and 2) and takes into account all activities that contribute to or reduce emissions during the year. This provides a more comprehensive view of our sustainability performance during the year than sustainable emissions reductions, which is only measured against interventions taken to reduce emissions in year. Operated carbon emissions is recognized by stakeholders and allows comparability of our performance with those of others in our industry. The committee believes that the introduction of operated carbon emissions will drive the right behaviours in the scorecard by remaining focused on activities impacting emissions during the year.

Under operations, we are introducing a more holistic transition growth engines adjusted EBITDA % growth measure in place of the convenience & EV margin growth measure. This change is reflective of our continued focus on financial delivery within all our transition growth engines and aims to widen the scope of how we assess performance within the scorecard.

Provided below is a summary of the measures we have chosen for the 2024 annual bonus plan scorecard. The targets are commercially sensitive and will be disclosed in the 2024 directors' remuneration report.

Safety and sustainability

30%

Measures include	Weighting
Tier 1 and tier 2 process safety events (measured separately)	15%
Operated carbon emissions	15%

Operational

20%

Measures include	Weighting
bp-operated reliability and availability	10%
Transition growth engines adjusted EBITDA % growth	10%

Financials

50%

Measures include	Weighting
Adjusted free cash flow	25%
Earnings (adjusted EBITDA)	25%

Introduction of framework on fatalities

It is always our goal to eliminate workforce fatalities. Nevertheless, should such tragic losses occur, from 2024 onwards, a framework is being introduced to help guide decisions regarding the impact of workforce fatalities on the annual bonus scorecard. In developing the framework, the committee listened to shareholder feedback during the 2023 engagement cycle and sought the input of the safety and sustainability committee (S&SC).

The framework is based on the following guiding principles:

Collective responsibility	The entire annual bonus score will typically be adjusted by the same percentage for all participants of the plan in the event of a workforce fatality. This is to reinforce that safety is everyone's priority at bp.
Meaningful adjustment	Any reduction will be applied to the overall outcome of the annual bonus scorecard, rather than impacting only the safety elements of the bonus.
Judgement within a frame	The level of adjustment will be a judgement within a range up to a maximum set by reference to the weighting of the safety component of the annual bonus scorecard. There is no value that we would associate with a loss of human life and therefore are not proposing a formulaic policy in such situations.
Treatment of new assets	To enable the embedding of bp's safety culture, operating systems and practices, major acquisitions will be excluded for an initial period of time. This will be agreed upfront and allow for a period of transition to bp.

Application of framework

The framework will be consulted where there has been any workforce fatality during the year. The committee will seek input from the S&SC, who will provide a view on the individual fatalities. This will broadly include consideration of the following:

Influence
The extent to which the incident was within bp's operational control

Foreseen
The extent to which the incident could have been foreseen

Nature of deficiency
To reflect whether the incident was an isolated versus a systemic deficiency

Taking into consideration the S&SC's input, the committee will then apply judgement on the level of adjustment to be applied to the overall formulaic bonus.

Treatment of new assets

As stated above, major acquisitions will be excluded from the framework for an initial period to enable the embedding of bp's safety culture, operating systems and practices.

For example, it has been agreed that Lightsource bp will be excluded for two years; 2024 and 2025 performance years, based on an acquisition date expected in 2024, and TravelCenters of America for three years; 2023, 2024 and 2025 performance years, based on an acquisition date of May 2023. The difference in timeframes between the two is reflective of TravelCenters of America being a complex business with over 20,000 employees and therefore requiring a longer period of time to fully embed bp's safety culture. Practically, this means that any fatality in Lightsource bp or TravelCenters of America may impact the annual cash bonus plan outcomes for bp cash bonus plan participants from performance year 2026.

Where an acquisition has been excluded for an initial transitionary period, there will still be careful consideration of safety performance within this business during the performance period. Where a workforce fatality has occurred, the committee will consider the individual incident – alongside input from the S&SC – and will determine whether a downward adjustment to bonus outcomes for the specific business is appropriate.

Overriding discretion

Alongside this framework, the committee will retain the right to exercise discretion and will review the formulaic outcome against broader considerations. While the committee has ultimate discretion with regards to the level of adjustment that will be applied, typically adjustments will be made with reference to the range set out within our framework.

Details of any adjustment based on the framework will be provided in full retrospectively.

Measures for the 2024-26 performance shares (EDIP)

Provided below is a summary of the measures we have chosen for the 2024-26 performance share plan. The categories remain unchanged from the prior year, however the weighting on strategic progress has reduced from 25% to 20% following shareholder feedback. The weighting on relative TSR has increased from 20% to 25%, providing further alignment between executive directors and the wider shareholder experience.

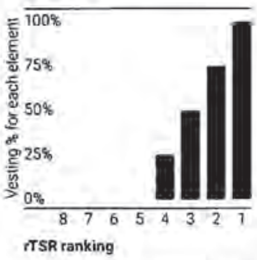
Under our ESG category, we are proposing to introduce a cumulative reduction % in operated carbon emissions measure. This is to provide direct alignment with bp's net zero ambition so that all operated emissions are captured. The weighting will remain unchanged at 15% to ensure a meaningful percentage of the EDIP is focused on operational emissions reduction and performance.

For strategic progress, as referenced in the chair's statement, the committee has reflected on how performance will be assessed under this measure. While the strategic pillars remain unchanged, and following feedback from shareholders, a greater focus will be placed on value-driven objectives and financial resilience within our transition growth engines. In assessing final strategic progress outcomes, a holistic review of performance will be undertaken and outcomes will be aligned with the overall shareholder experience.

rTSR

25%

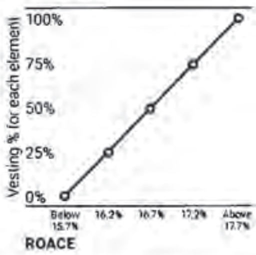
Peer group of seven companies: Chevron, Eni, Equinor, ExxonMobil, Repsol, Shell and TotalEnergies (and bp)[a]



Financials

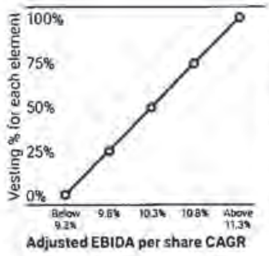
20%

ROACE (average 2024-26)[b]



20%

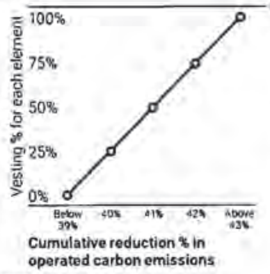
Adjusted EBIDA per share CAGR[c]



Environmental, social and governance

15%

Cumulative reduction % in operated carbon emissions[d]



Strategic progress

20%

Weighting of measures subject to remuneration committee judgement:

- Deliver value through a resilient hydrocarbon business.
- Demonstrate track record, scale and value in low carbon energy.
- Accelerate growth in convenience and mobility.

- Underpin will take into account safety outcomes prior to determining final vesting percentage.
- Remuneration committee discretion will reflect shareholder experience, environment, societal and other inputs.
- Robust malus and clawback may apply in certain circumstances.

a Nil vesting for fifth place or lower.
b Based on the average over 2024, 2025 and 2026. Score to be based on straight-line interpolation between threshold and maximum. Adjustments may be required in certain circumstances. The external environment to be a considered judgement in the final outcome.
c Targets will be adjusted for mergers, acquisitions and disposals outside of plan. The committee may consider share buyback activity before making a final judgement.
d Scope 1 and 2 GHG emission reductions versus 2019 baseline from operated carbon emission including portfolio change.

★ See glossary on **page 373**

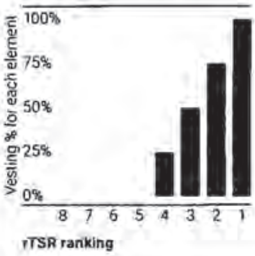
Having reflected on the counsel received from shareholders, we disclose below the measures and weightings for each of our in-flight awards.

Measures for 2022-24 performance shares

rTSR

20%

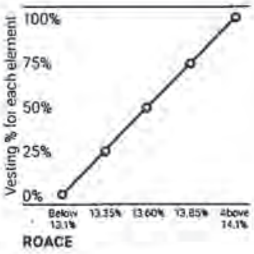
Peer group of seven companies: Chevron, Eni, Equinor, ExxonMobil, Repsol, Shell and TotalEnergies (and bp)



Financials

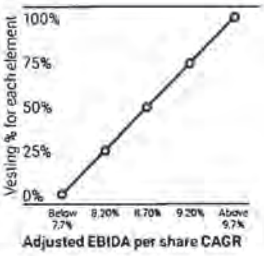
20%

ROACE (average 2022-24)



20%

Adjusted EBIDA per share CAGR



Strategic progress

40%

Weighting of measures subject to remuneration committee judgement:

- Deliver value through a resilient hydrocarbon business.
- Demonstrate track record, scale and value in low carbon energy.
- Accelerate growth in convenience and mobility.

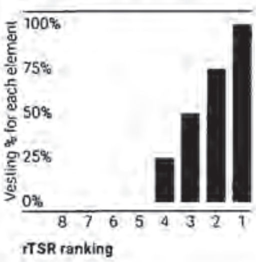
See **page 24** for key performance indicators related to the strategic progress measures.

Measures for 2023-25 performance shares

rTSR

20%

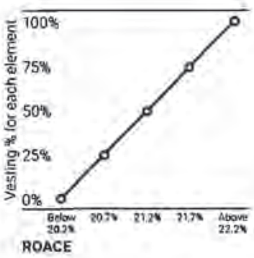
Peer group of seven companies: Chevron, Eni, Equinor, ExxonMobil, Repsol, Shell and TotalEnergies (and bp)



Financials[a]

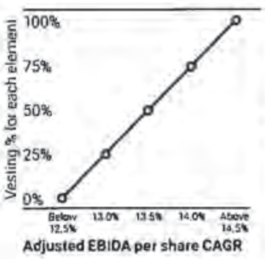
20%

ROACE (average 2023-25)



20%

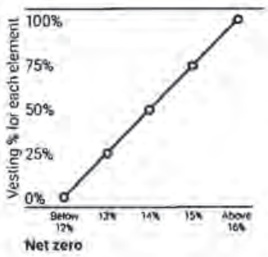
Adjusted EBIDA per share CAGR



Environmental, social and governance[b]

15%

Net zero across entire bp operations by 2050 (Scope 1 + 2)



Strategic progress

25%

Weighting of measures subject to remuneration committee judgement:

- Deliver value through a resilient hydrocarbon business.
- Demonstrate track record, scale and value in low carbon energy.
- Accelerate growth in convenience and mobility.

See **page 24** for key performance indicators related to the strategic progress measures.

Given the fluidity of our strategy and ever changing energy environment, the committee intends to review strategic progress primarily through value-driven criteria for outstanding awards. See **page 118** for further detail.

a For the 2023-25 performance shares, the targets for ROACE and adjusted EBIDA per share CAGR were incorrectly reported in the 2022 directors' remuneration report. These figures have been updated to reflect the actual targets agreed by the committee last year.

b Scope 1 and 2 GHG emissions reductions versus 2019 baseline from permanent operational interventions, excluding reductions associated with portfolio changes.

Stewardship and executive director interests

We believe that our executive directors should build and maintain a material interest in the company. Our policy therefore requires the CEO and CFO to build a personal shareholding of five times and four and a half times, respectively, their salary within five years of their appointment. They are expected to maintain this level of personal shareholdings for two years post-employment.

Directors' shareholdings and aggregated interests (audited)

The table below details the personal shareholdings of each executive director. These figures include all beneficial and non-beneficial ownership of shares of bp (or calculated equivalents) that have been disclosed to the company. Murray Auchincloss has met the minimum shareholding requirement under the policy. Kate Thomson is building towards the policy requirement that applies five years from her date of appointment, 2 February 2024. The committee has reviewed and confirmed this position and will continue to monitor compliance with this policy.

	Directors' ordinary shares or equivalents at 16 Feb 2024	Aggregated interests at 16 Feb 2024, all plans				Current shareholding for MSR[b]	Value of current shareholding[c], £	Multiple of salary achieved[d]
		Unvested awards not subject to performance conditions		Unvested awards subject to performance conditions				
		Shares[a]	Options	Shares	Options			
Murray Auchincloss[e]	793,786	1,417,533	155,872	1,655,458	–	1,396,411	6,591,060	6.4
Kate Thomson	192,358	294,530	500,000	161,950	–	348,458	1,644,722	2.1
Bernard Looney[f]	1,348,866	–	–	–	–	1,348,866	6,366,648	4.4

a Includes deferred and restricted shares, and performance shares prior to application of the performance factor.
b Includes ordinary shares or equivalents and unvested awards not subject to performance conditions on a net-of-tax basis, excluding dividends.
c Based on ordinary share price at 16 February 2024 of £4.72.
d As described on **page 114**, a pro-rata salary has been used to calculate the multiple of salary achieved for Murray Auchincloss.
e Includes interests of a person closely associated with Murray Auchincloss.
f Bernard Looney stepped down from the board on 12 September 2023. His interest in shares is shown up to 31 December 2023. He is required to hold his in-employment shareholding guideline, or actual shareholding if lower, for two years post-cessation of employment, as required by the shareholder approved-remuneration policy. His multiple of salary achieved reduced from the figure reported in the 2022 DRR due to share price movements and the impact of forfeited awards. See **page 127** for further details.

Executive directors have additional interests in performance, restricted and deferred bonus shares. These interests are shown in aggregate in the table above, and by plan in the tables below. For performance shares, the figures reflect maximum possible vesting levels (excluding the addition of reinvested dividends) even though the actual number of shares that vest will depend on the extent to which performance conditions are satisfied.

Performance shares (audited)

			Share element interests						
			Potential maximum performance shares[a]				Interests to vest in 2024		
	Performance period	Date of award of performance shares	At 1 Jan 2023	Awarded 2023	Lapsed 2023	At 31 Dec 2023	Number of ordinary shares due to vest	Vesting date	Face value of award[b], £
Murray Auchincloss	2021-23[c]	1 Jun 2021	1,122,009	–	–	1,122,009	943,565	Jun 2024	–
	2022-24[d]	26 May 2022	937,500	–	–	937,500	–	May 2025	–
	2023-25[d]	2 May 2023	–	717,958	–	717,958	–	May 2026	3,503,635
Bernard Looney[e]	2021-23	1 Jun 2021	2,218,853	–	2,218,853	–	–	n/a	–
	2022-24	26 May 2022	1,813,175	–	1,813,175	–	–	n/a	–
	2023-25	2 May 2023	–	1,368,828	1,368,828	–	–	n/a	6,679,881

a For awards under the 2021-23 plans performance conditions were measured 20% on TSR relative to Chevron, ExxonMobil, Shell, Total, ENI, Equinor and Repsol ('comparator companies') over three years, 20% ROACE averaged over performance period, 20% adjusted EBIDA per share CAGR measured versus June 2020 and 40% on strategic progress assessed over the performance period.
For awards under the 2022-24 plans performance conditions are measured 20% on TSR relative to the comparator companies over three years, 20% ROACE averaged over the performance period, 20% adjusted EBIDA per share CAGR measured versus year ended June 2020 and 40% on strategic progress assessed over the performance period.
For awards under the 2023-25 plans performance conditions are measured 15% on our aim 1 net zero ambition, 20% on TSR relative to the comparator companies over three years, 20% ROACE averaged over the performance period, 20% adjusted EBIDA per share CAGR measured versus year ended June 2020 and 25% on strategic progress assessed over the performance period.
Since 2010, vesting of the performance shares under EDIP has been subject to a safety underpin. If the committee assesses that there has been a material deterioration in safety performance, or there have been major incidents, either of which reveal underlying weaknesses in safety management, then it may conclude that shares should vest only in part, or not at all. In reaching its conclusion, the committee obtains advice from the safety and sustainability committee.
Each performance period ends on 31 December of the third year.
b The face value of awards granted during 2023 have been calculated using market prices of ordinary shares at closing on the date of the award, as follows: £4.88 on 2 May 2023.
c Represents unvested shares, which will vest during 2024 but are not subject to further performance conditions, achieved under rules of the plan and includes notional dividends accrued up to 16 February 2024. Murray's award is due to vest on 3 June 2024, three years after the date of award. The average share price during 4Q 2023 was £4.93 for each share. The amount reported as 2023 income on the single figure table is therefore £4.652m for Murray.
d Minimum vesting under these awards (below threshold performance) is 0%. At threshold performance of each measure, vesting would be 5% of maximum for 2022-24 and 2023-25. The 2024 performance share award under EDIP is expected to be made following the conclusion of the 2024 annual general meeting.
e Bernard Looney stepped down from the board on 12 September 2023. His interest in shares is shown up to 31 December 2023.

Restricted shares (audited)

			Share element interests			
			Number of restricted shares			
	Restricted period	Date of award of restricted shares	At 1 Jan 2023	Awarded 2023	At 31 Dec 2023	Face value of award[a], £
Murray Auchincloss	2018-22[bc]	20 Mar 2018	43,170	–	–	–
	2020-22[cd]	28 Aug 2020	4,840	–	–	–
	2021-23[d]	25 Mar 2021	21,277	–	21,277	–
	2021-23[d]	16 Jun 2021	10,485	–	10,485	–
	2022-24[d]	22 Mar 2022	10,066	–	10,066	–
	2022-24[d]	17 Jun 2022	11,565	–	11,565	–
	2023-25[d]	7 Jun 2023	–	8,630	8,630	40,906

a The face value of awards granted during 2023 have been calculated using market prices of ordinary shares at closing on the date of the award, as follows: £4.74 on 7 June 2023.
b Award made under the Restricted Share Plan II prior to appointment as a director.
c Awards vested and were released on 15 February 2023.
d Interests of person closely associated with Murray Auchincloss.

Deferred shares (audited)

				Deferred share element interests				
				Potential maximum deferred shares				
	Bonus year	Restricted period	Date of award of deferred shares	At 1 Jan 2023	Awarded 2023	Lapsed 2023	At 31 Dec 2023	Face value of award[a], £
Murray Auchincloss	2021	2022-24[b]	16 Feb 2022	164,569	–	–	164,569	–
	2021	2022-24[c]	22 Mar 2022	7,046	–	–	4,698	–
	2022	2023-25[c]	21 Mar 2023	–	10,761	–	10,761	54,128
	2022	2023-25[b]	2 May 2023	–	87,584	–	87,584	427,410
Bernard Looney[d]	2021	2022-24	16 Feb 2022	292,902	–	292,902	–	–
	2022	2023-25	2 May 2023	–	147,567	147,567	–	720,127

a The face value of awards granted during 2023 have been calculated using market prices of ordinary shares at closing on the dates of the awards, as follows: £5.03 on 21 March 2023 and £4.88 on 2 May 2023.
b There is no identified minimum vesting threshold level. The 2023 bonus year deferred shares award under EDIP is expected to be made following the conclusion of the 2024 annual general meeting.
c Interests of person closely associated with Murray Auchincloss. Award made under the IST Deferred Annual Bonus Plan.
d Bernard Looney stepped down from the board on 12 September 2023. His interest in shares is shown up to 31 December 2023.

Share interests in share option plans (audited)

In common with many of our UK employees, executive directors may hold options under the bp group Save As You Earn (SAYE) scheme as shown below. These options are not subject to performance conditions.

	Option type	At 1 Jan 2023	Awarded 2023	Exercised 2023	Lapsed 2023	At 31 Dec 2023[a]	Option price	Market price at date of exercise	Date from which first exercisable	Expiry date
Murray Auchincloss	SAYE[b]	3,614	–	3,614	–	–	£2.49	£5.03	01 Sep 2023	28 Feb 2024
	SAYE[b]	3,571	–	–	–	3,571	£2.52	–	01 Sep 2024	28 Feb 2025
	Reinvent bp[b]	150,000	–	–	–	150,000	£3.15	–	11 Mar 2025	10 Mar 2031
	SAYE[b]	–	2,301	–	–	2,301	£3.91	–	01 Sep 2026	28 Feb 2027
Bernard Looney[c]	SAYE	6,024	–	–	6,024	–	£2.49	–	n/a	n/a
	SAYE	5,952	–	–	5,952	–	£2.52	–	n/a	n/a

a The closing market price of an ordinary share on 29 December 2023 was £4.66. During 2023 the highest market price was £5.68, and the lowest market price was £4.50.
b Interests of person closely associated with Murray Auchincloss.
c Bernard Looney stepped down from the board on 12 September 2023. His interest in options is shown up to 31 December 2023.

Bernard Looney had, and Murray Auchincloss has, no interests in bp preference shares, debentures or option plans (other than as listed above), and neither did, nor do, they have interests in shares or loan stock of any subsidiary company.

Directors and leadership team

No directors or other leadership team members own more than 1% of the shares in issue. At 16 February 2024, our directors and leadership team members collectively held interests of 6,225,244 ordinary shares or their calculated equivalents, 3,654,106 restricted share units (with or without conditions) or their calculated equivalents, 5,588,712 performance shares or their calculated equivalents and 6,935,858 options over ordinary shares or their calculated equivalents, under bp group share option schemes.

Payments to past directors and for loss of office

Departure terms for Bernard Looney (audited)

As set out elsewhere in the report, Bernard Looney stepped down from the board with immediate effect on 12 September 2023. After due consideration, the board concluded that Bernard Looney's actions amounted to serious misconduct and he was dismissed without notice effective 13 December 2023. This decision had the effect of bringing his notice period to an immediate end.

The following provides further detail on his remuneration arrangements[a]:

Salary and benefits	In line with the shareholder-approved remuneration policy, Bernard Looney continued to receive salary, cash allowance in lieu of pension and benefits during the period 12 September 2023 to 13 December 2023 with a total value of £424,000. On 13 December 2023 his notice period came to an immediate end and he ceased to be entitled to any form of fixed pay, including cash allowance in lieu of pension, in respect of the period from this date onwards.
2023 annual bonus	Bernard Looney will not receive an annual bonus in respect of the 2023 financial year. Taking into account the performance outcome of 79.5% of maximum, this would have amounted to £2,591,000 for the full year (against the maximum of £3,258,000 included in the 13 December 2023 announcement).
Outstanding share awards	**Performance share awards** Bernard Looney's unvested performance share awards under the EDIP – 2022-24 and 2023-25 – lapsed in full on cessation of employment. This amounts to a maximum value of £14,667,000. The performance share awards under the 2021-23 EDIP also lapsed in full. Taking into account the performance outcome of 75% of maximum, this would have amounted to £7,671,000 for the performance period (against the maximum of £10,228,000 that was included in the 13 December 2023 announcement for this award). **Deferred bonus awards** Bernard Looney's unvested deferred annual bonus share awards under the EDIP – from the 2021 and 2022 annual bonus awards – lapsed in full on cessation of employment. This amounts to £2,030,000. Note, these totals do not take into consideration any accrued dividends over the period. For the 2021-23 EDIP award, this would have amounted to £930,000.
Recovery provisions	Reflecting the decision by the board that Bernard Looney should not retain any variable pay relating to service following the date of the misleading assurances he gave to the board (July 2022), discretionary clawback has been applied to the following awards: **2022 annual bonus** Bernard Looney has repaid 50% of the cash portion of the annual bonus paid to him in respect of the financial year 2022 (net of tax). This amounts to £420,000. **2020-22 performance share awards** Bernard Looney has forfeited 6/36ths of his shares that vested in August 2023 from the 2020-22 performance share plan under the EDIP (net of tax). This amounts to £529,000. In practice, clawback has been enforced by reducing the number of the former CEO's vested shares currently in the holding period from the 2020-22 EDIP award.

a In line with the press release on 13 December 2023, the values of the share awards have been calculated using the closing price on 12 December 2023 of £4.61. All values are before tax unless stated otherwise. Figures have been rounded to the nearest thousand and, as such, totals may not agree exactly with the sum of the component parts.

Bernard Looney is required to hold his in-employment shareholding guideline, or actual shareholding if lower, for two years post-cessation of employment, as required by the shareholder-approved remuneration policy.

His separation terms were made in line with the shareholder-approved remuneration policy. He did not receive any other payments in relation to the termination of his employment.

Post-employment benefits (audited)

Bob Dudley and Brian Gilvary were provided with tax return preparation support amounting to £4,018 and £12,000 respectively and Bob Dudley was provided with corporate hospitality amounting to £1,091.

We made no other payments within the scope of the disclosure requirements to any past director of bp during 2023 (we have no de minimis threshold for such disclosures).

Directors' remuneration report continued

Chair and non-executive director outcomes and interests

Fee structure

The table below shows the fee structure for the chair and non-executive directors (NEDs). The chair is not eligible for committee chairship and membership fees.

As provided for under the 2023 policy, fee levels are reviewed annually alongside the wider workforce salaries and any changes that are agreed are put into effect from 1 April each year. Taking all factors into consideration, for 2024 the board agreed to implement a 4.5% increase to the base fee for its NEDs and for the senior independent director, aligned to the salary increase budget for the UK wider workforce. Oversight and determination of the fees payable to the chair falls to the remuneration committee, which agreed to align the percentage increase of the chair's fee with the other non-executive board members.

Following board and remuneration committee approval, the remuneration arrangements for the chair and NEDs will be adjusted with effect from 1 April 2024 as per the below table.

£ thousand per annum	2024/25 fees	2023/24 fees
Chair	**854**	817
Senior independent director[a]	**174.5**	167
Board member	**125.5**	120
Audit, remuneration and safety and sustainability committees chairship fees[b]	**35**	35
Committee membership fee	**20**	20

a The senior independent director is eligible for committee chairship and membership fees, but has waived her entitlement to the fee for membership of the people and governance committee. Fee includes board member fee.
b Committee chairs do not receive an additional membership fee for the committee they chair.

2023 remuneration (audited)

The table below shows the fees paid and applicable benefits for the year ended 31 December 2023. Benefits include travel and other expenses relating to the attendance at board and other meetings both inside and outside bp's headquarters in the UK. Under the terms of his engagement with the company, Helge Lund has the use of a fully maintained office for company business, a car and driver, and security advice in London. Benefits values have been grossed up using a tax rate of 45%, where relevant, as an estimation of tax due. Taxable benefit changes for the chair in 2023 principally arose as a result of additional travel commitments in relation to his bp duties.

	Fees		Benefits		Total[a]	
£ thousand	**2023**	2022	**2023**	2022	**2023**	2022
Dame Amanda Blanc[b]	**159**	38	**2**	0	**161**	38
Pamela Daley	**159**	155	**67**	65	**226**	220
Helge Lund (Chair)	**809**	785	**66**	37	**875**	822
Melody Meyer[c]	**184**	180	**29**	34	**213**	214
Tushar Morzaria[d]	**174**	170	**3**	6	**177**	176
Hina Nagarajan[b]	**116**	–	**32**	–	**148**	–
Satish Pai[b]	**116**	–	**39**	–	**155**	–
Paula Rosput Reynolds	**220**	215	**20**	23	**240**	238
Karen Richardson[e,f]	**178**	160	**18**	23	**196**	183
Sir John Sawers[g]	**174**	170	**7**	4	**181**	174
Johannes Teyssen[c]	**149**	145	**15**	14	**164**	159

a Due to rounding, the totals may not agree exactly with the sum of the component parts.
b Dame Amanda Blanc was appointed on 1 September 2022, and Hina Nagarajan and Satish Pai were appointed on 1 March 2023.
c Fee includes £10,000 p.a. for being a member of the bp geopolitical advisory council.
d Due to an administrative error Tushar Morzaria received an overpayment of £6,000 during 2022, which was recovered in 2023. These payments have been excluded for consistency.
e Fee includes £25,000 p.a. for chairing the bp digital advisory council.
f Fee includes £25,000 p.a. for chairing the bp innovation advisory council, which was undertaken until 31 July 2023.
g Fee includes £15,000 p.a. for chairing the bp geopolitical advisory council.

Chair and non-executive directors' interests (audited)

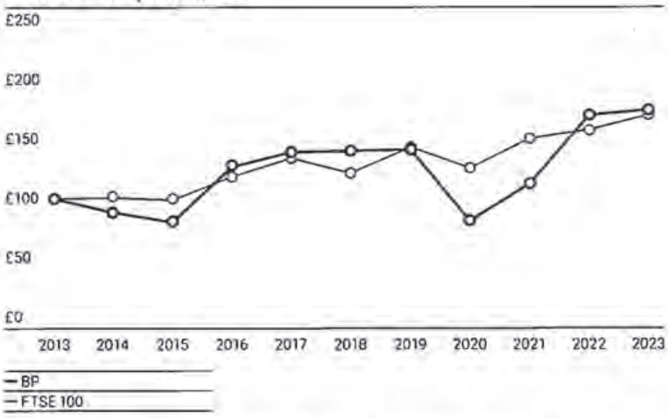
The figures below include all the beneficial and non-beneficial interests of the chair and each non-executive director (NED) of the company in shares of bp (or calculated equivalents) that have been disclosed according to the disclosure guidance and transparency rules in the Financial Conduct Authority handbook ('the DTRs') as at the applicable dates. Our 2023 policy encourages NEDs to establish a holding in bp shares of the equivalent value of one year's base fee during their tenure.

	Ordinary shares or equivalents					
	At 1 Jan 2023	At 31 Dec 2023	Changes to 16 Feb 2024	At 16 Feb 2024	Value of current shareholding[a]	% of guideline achieved
Dame Amanda Blanc	23,500	23,500	–	23,500	£110,920	92%
Pamela Daley	40,332	40,332	–	40,332	$238,295	160%
Helge Lund (Chair)	600,000	600,000	–	600,000	£2,832,000	347%
Melody Meyer	20,646	20,646	–	20,646	$121,983	82%
Tushar Morzaria	71,972	71,972	–	71,972	£339,708	283%
Hina Nagarajan[b]	–	10,000	–	10,000	£47,200	39%
Satish Pai[b]	–	12,000	–	12,000	$70,900	48%
Paula Rosput Reynolds	78,378	78,378	–	78,378	$463,083	311%
Karen Richardson	29,316	29,316	–	29,316	$173,209	116%
Sir John Sawers	24,242	24,242	–	24,242	£114,422	95%
Johannes Teyssen	35,000	35,000	–	35,000	£165,200	138%

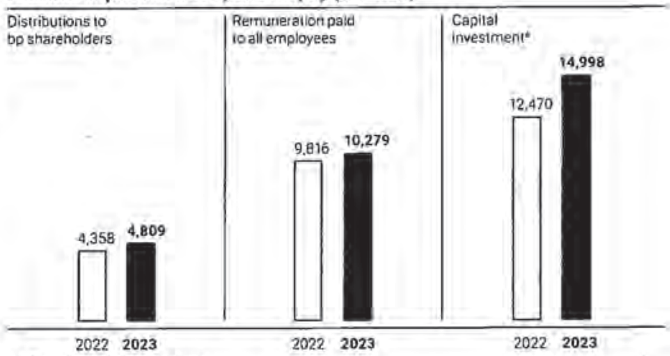
a Based on ordinary share and ADS prices at 16 February 2024 of £4.72 and $35.45. Where a US$ value is provided these shares are held as ADSs.
b Hina Nagarajan and Satish Pai were appointed on 1 March 2023.

Other disclosures

Historical TSR performance



Relative importance of spend on pay ($ million)



a Organic capital expenditure.

The graph above shows the growth in value of hypothetical £100 investments in BP p.l.c. ordinary shares, and in the FTSE 100 index (of which bp is a constituent), over 10 years from 31 December 2013 to 31 December 2023.

History of chief executive officer remuneration

Year	Chief executive officer	Total remuneration, thousand	Annual bonus % of maximum	Performance shares % of maximum
2014	Bob Dudley	$16,390	73.3	63.8
2015	Bob Dudley	$19,376	100	74.3
2016	Bob Dudley	$11,904	61	40
2017	Bob Dudley	$15,108	71.5	70
2018	Bob Dudley	$15,253	40.5	80
2019	Bob Dudley	$13,234	67.5	71.2
2020[a]	Bob Dudley	$188	0	32.5
	Bernard Looney	£1,735	0	32.5
2021	Bernard Looney	£4,457	80.5	30
2022[b]	Bernard Looney	£10,331	75.5	54
2023[cd]	**Bernard Looney**	**£1,175**	**n/a**	**n/a**
	Murray Auchincloss	**£5,680**	**79.5**	**75**

a 2020 figures show remuneration for the periods of qualifying service as CEO during 2020.

b 2022 figure updated based on the actual share price used for vesting of £4.86.

c Share price has been based on the average share price over Q4 of the 2023 FY of £4.93.

d Bernard Looney stepped down as CEO and from the board of directors with immediate effect on 12 September 2023 and was succeeded by Murray Auchincloss as interim CEO on the same date. In respect of variable pay, Bernard Looney did not receive any bonus or EDIP awards in respect of 2023. The total single figure shown in the table above excludes the impact of malus and clawback in order to provide a comparison with prior years. For further details of his treatment upon departure, please see **page 127**. For Murray Auchincloss, his total single figure has been pro-rated to show the period worked as interim CEO during the year except for his long-term share award which has been shown in full.

Chief executive officer to employee pay ratio

Year	Method	25th percentile: pay ratio, total pay and benefits, (salary)	50th percentile: pay ratio, total pay and benefits, (salary)	75th percentile: pay ratio, total pay and benefits, (salary)
2019[a]	Option A	543:1	188:1	82:1
2020[a]	Option A	99:1	40:1	19:1
2021	Option A	208:1	87:1	35:1
2022[b]	Option A	421:1	172:1	69:1
2023[cd]	**Option A**	**268:1** **£25,535** **(£25,080)**	**103:1** **£66,822** **(£48,433)**	**45:1** **£150,704** **(£80,525)**

a Bob Dudley's pay has been converted from US dollars as per the ratios reported in the 2019 and 2020 annual reports.

b Share price for the CEO share plan vesting has been updated based on the actual share price used for vesting of £4.86.

c Share price for the CEO share plan vesting has been based on the average share price over 4Q of the 2023 FY of £4.93.

d For 2023, the total single figure used to derive the CEO pay ratio is a combination of the two individuals in position of CEO during the year. In respect of the former CEO, the calculation has been based on the total single figure excluding the impact of malus and clawback in order to provide a comparison with prior years. Appropriate pro-rating of fixed and variable pay has been applied.

This is our fifth year reporting the CEO pay ratio following the requirements introduced in 2018. As per the past four years, we have selected Option A as our reporting basis, being the most accurate approach available, and we confirm that no broadly applicable components of pay have been omitted. Where necessary, full-time equivalent pay has been calculated by simple engrossment of part-year values. Employee values relate to pay and benefits for the year ended 31 December 2023.

Changes in pay ratio over time reflect the fact that CEO remuneration is more heavily weighted to variable pay, resulting in larger year-on-year swings than wider workforce pay. This is evidenced by the variability of the CEO pay ratio over the past five years. This volatility in the pay ratio reporting from year to year is expected, and illustrates one of the challenges in commenting on whether pay differentials are appropriate. In 2023 the 50th percentile pay ratio decreased from 172:1 to 103:1. This was driven by the former CEO not receiving any variable pay in respect of 2023, as he was not paid any annual bonus in respect of 2023 and his 2021-23 EDIP lapsed in full on departure. For further details of his treatment upon departure, please see **page 127**. It is the view of the committee that the remuneration frameworks we have in place for the executive directors and the wider workforce are fit-for-purpose and deliver pay outcomes appropriate to the circumstance of the year, with differentials that reflect the relative contributions made at different levels in our organization.

The committee is satisfied that the median pay ratio reported this year is consistent with bp's pay policies for employees and does not constitute a reason to modify our pay programmes.

Percentage change comparisons: Directors' remuneration versus employees

In the table below, values in column 'a' represent the percentage change in salary and fees; values in column 'b' represent the percentage change in taxable benefits; and values in column 'c' represent the percentage change in bonus outcomes for performance periods in respect of each financial year. For the purposes of comparison, the employee percentages shown below represent the relative change between the median full-time equivalent pay for every employee employed at BP p.l.c. at any point during the relevant financial year, and the equivalent median value for the preceding financial year.

Taxable benefit changes for the chair in 2023 principally arose as a result of additional travel commitments in relation to his bp duties, and for the current CEO as a result of transitional changes to the car-related benefit, as approved by the committee.

	2023 v 2022			2022 v 2021			2021 v 2020			2020 v 2019		
Percentage change for[a]:	a	b	c	a	b	c	a	b	c	a	b	c
Employees	6%	1%	4%	2%	1%	45%	7%	-9%	100%	0%	0%	-100%
Bernard Looney[b]	-27%	-60%	-100%	4%	233%	-2%	2%	-29%	100%	—	—	—
Murray Auchincloss[c]	30%	283%	31%	7%	530%	3%	5%	5%	100%	—	—	—
Dame Amanda Blanc[d]	38%	100%	n/a	—	—	n/a	—	—	n/a	—	—	n/a
Pamela Daley	2%	2%	n/a	7%	43%	n/a	4%	1385%	n/a	-15%	-92%	n/a
Helge Lund (chair)	3%	78%	n/a	0%	97%	n/a	0%	-24%	n/a	0%	-74%	n/a
Melody Meyer	2%	-14%	n/a	13%	139%	n/a	-4%	283%	n/a	9%	-77%	n/a
Tushar Morzaria[c]	2%	-46%	n/a	25%	100%	n/a	5%	0%	n/a	—	—	n/a
Hina Nagarajan[e]	—	—	n/a	—	—	n/a	—	—	n/a	—	—	n/a
Satish Pai[e]	—	—	n/a	—	—	n/a	—	—	n/a	—	—	n/a
Paula Rosput Reynolds	2%	-14%	n/a	16%	145%	n/a	6%	228%	n/a	2%	-92%	n/a
Karen Richardson[f]	11%	-20%	n/a	30%	96%	n/a	—	—	n/a	—	—	n/a
Sir John Sawers	2%	105%	n/a	17%	1%	n/a	0%	1588%	n/a	0%	-83%	n/a
Johannes Teyssen[f]	3%	12%	n/a	21%	65%	n/a	—	—	n/a	—	—	n/a

a The resumption of bonus for 2021, and Tushar Morzaria's and Dame Amanda Blanc's taxable benefits for 2022 and 2023 respectively were, mathematically, infinite increases relative to the nil bonus for 2020 and nil taxable benefits for 2021 and 2022; we have shown the increases as 100% for illustration.

b Bernard Looney stepped down from the board on 12 September 2023 and his remuneration is shown up to this date.

c Murray Auchincloss and Tushar Morzaria were appointed to the board part-way through 2020 and therefore, other than for one-time items, their 2020 pay has been annualised for comparison.

d Dame Amanda Blanc was appointed to the board part-way through 2022 and therefore no comparison to 2021, 2020 or 2019 is available and, other than for one-time items, her 2022 pay has been annualised for comparison.

e Hina Nagarajan and Satish Pai were appointed to the board in 2023 and therefore no comparison to 2022, 2021, 2020 or 2019 is available.

f Karen Richardson and Johannes Teyssen were appointed to the board in 2021 and therefore no comparison to 2020 or 2019 is available.

Independence and advice

The board considers all committee members to be independent with no personal financial interest, other than as shareholders, in the committee's decisions. Further detail on the activities of the committee in 2023 is set out in the remuneration committee report on **page 125**.

During 2023 Ben Mathews, who was employed by the company and reported to the chair of the board, acted as secretary to the remuneration committee.

The committee also received advice on various matters relating to the remuneration of executive directors and senior management from Kerry Dryburgh, EVP people & culture and Ashok Pillai, SVP reward.

PricewaterhouseCoopers LLP (PwC) continued to provide independent advice to the committee in 2023. PwC advice included, for example, support with remuneration benchmarking and updates on market practice. PwC is a member of the Remuneration Consulting Group and, as such, operates under the code of conduct in relation to executive remuneration in the UK. The committee is satisfied that the advice received is objective and independent. The committee is comfortable that the PwC engagement partner and team who provides remuneration advice to the committee do not have connections with the company or its directors that may impair their independence.

Total fees or other charges (based on an hourly rate) for the provision of remuneration advice to the committee in 2023 (save in respect of legal advice) were £94,714 to PwC. Freshfields Bruckhaus Deringer LLP (Freshfields) provided legal advice on specific compliance matters to the Committee. PwC and Freshfields provide other advice in their respective areas to the group.

Considerations related to the Corporate Governance Code

When setting the 2023 policy, the committee concluded that a scorecard-based approach to setting targets and measuring outcomes helps it to engage transparently with shareholders and the wider workforce on remuneration. Thus, bp continues to operate a simple, clear structure of market-aligned salary with annual and three-year performance-based incentives. Risks are managed through careful setting of performance measures and targets and the committee retains the exercise of its discretion in assessing outcomes. These are complemented with robust malus and clawback measures. Remuneration outcomes are predictable, as shown in the implementation charts of the 2023 policy, and proportional by virtue of the challenging performance levels required to achieve target pay outcomes. Through material weighting in measures related to safety, sustainability and strategy, as shown on **page 123**, remuneration aligns closely with bp's culture, as expressed through our purpose and ambition.

Directors' remuneration report continued

Shareholder engagement

Throughout 2023, the committee engaged frequently on remuneration policy and approach with bp's largest shareholders, as well as their representative bodies. This dialogue will continue throughout 2024.

The table below shows the recent votes on the directors' remuneration report and policy.

Year	% vote 'for'	% vote 'against'	Votes withheld
2023 – Directors' remuneration report	81.95%	18.05%	179,106,094
2023 – Directors' remuneration policy	94.23%	5.77%	36,921,641

Service contracts and letters of appointment

The service contracts of executive directors do not have a fixed term. Service contracts for each executive director are available for shareholders to view upon request at the company's registered office. Each executive director's service contract contains a 12-month notice period. Consistent with the best interests of the group, the committee will seek to minimize termination payments.

	Date of contract	Effective date
Murray Auchincloss	17 Jan 2024	17 Jan 2024
Kate Thomson	2 Feb 2024	2 Feb 2024

The non-executive directors (NEDs) have letters of appointment, which are available for shareholders to view upon request at the company's registered office. All directors are subject to annual re-election by shareholders at the annual general meeting. Normally, NEDs will be encouraged to serve for up to nine years from their appointment in line with the provisions of the 2018 Code, subject to annual re-election.

External appointments

The board supports executive directors taking up appointments outside the company to broaden their knowledge and experience. Each executive director is permitted to retain any fee from their external appointments. Such external appointments are subject to agreement by the chair and reported to the board. Any external appointment must not conflict with a director's duties and commitments to bp. Details of appointments as NEDs of publicly listed companies during 2023 are shown below.

	Appointee company	Additional position held at appointee company	Total fees, £
Murray Auchincloss	Aker BP ASA[a]	Director	0
Kate Thomson	Aker BP ASA[a]	Director	0

a Held as a result of the company's shareholding in Aker BP ASA.

This directors' remuneration report was approved by the board and signed on its behalf by Ben J.S. Mathews, company secretary on 8 March 2024.

Other disclosures

Appointment and succession plans

The chair, senior independent director (SID) and other independent non-executive directors (NEDs) each have letters of appointment with BP p.l.c. and do not serve, nor are they employed, in any executive capacity by bp. In line with the UK Corporate Governance Code 2018 (Code), bp proposes all directors for annual re-election by shareholders at the Annual General Meeting (AGM) where letters of appointment for each NED are available for inspection. Details on the skills and experience of each director seeking re-election, as well as their individual contributions to the long-term success of the company, are set out in the Notice of AGM. In accordance with the Code, NEDs would not be expected to serve beyond nine years unless there are exceptional circumstances. For information on board meetings held during 2023 and director attendance at board meetings, please see **page 85**. On behalf of the board, the people and governance committee reviews the formal appointment process and succession plans for the board. Appointments and succession plans are both based on merit and assessed against objective criteria with the promotion of diversity, equity and inclusion as central considerations. This includes diversity of gender, social and ethnic backgrounds as well as cognitive and personal strengths. In reviewing appointments and succession plans, due consideration is given to ensure the smooth transition of board members with specific responsibilities (e.g. committee chair roles) by allowing sufficient time for a detailed handover. This is balanced by the need to have new board members join at regular intervals such that over time there is a controlled approach to board members reaching the end of their tenure. Further detail on board succession and tenure can be found in the people and governance committee report on **page 95** and board at a glance disclosure on **page 83**, respectively.

Time commitments

The expectation regarding time commitment for board members to effectively discharge their duties is set out in the directors' letters of appointment. The time commitment varies with the demands of bp business and other events. The NEDs' external time commitments – whether through executive, non-executive, advisory or other roles – are regularly reviewed by the company secretary to ensure that directors are able to allocate appropriate time to bp. A register of directors' time commitments and conflicts is maintained and is also reviewed annually by the people and governance committee. The review process takes into account outside appointments and other external commitments and considers the complexity of the organization, the nature of the role, the sector (especially regulated and/or potentially competing sectors) and any leadership roles (e.g. a chair position). NEDs are also required to consult with the company secretary and chair before accepting any other role that may impact their ability to commit appropriate time to bp. The process for the approval of any new external appointment, significant or otherwise, for an existing director assesses the impact of that appointment on the director's time in order to ensure the director has sufficient capacity for their role with bp. As part of that same review process, a review of independence and potential conflicts of interest is undertaken, taking account of institutional investor and proxy advisor guidance and market best practice. Any external proposed commitments that could exceed the mandates set out in such guidance are given particular consideration. The board was satisfied that significant appointments undertaken during 2023 did not impact the directors' ability to prepare for and attend meetings, engage with stakeholders and participate in learning and development opportunities. The board has concluded that, notwithstanding external appointments held, each director is able to dedicate sufficient time to fulfil their bp duties. In compliance with the Code, none of the executive directors who served during 2023 held more than one non-executive directorship in a FTSE 100 company or other significant appointment throughout their tenure on the board. For more information on the external commitments of bp's directors, see **page 83**.

Independence and conflicts of interest

All directors have a statutory duty to exercise independent judgement. Independence of NEDs is crucial in bringing constructive challenge to the chief executive officer (CEO) and the leadership team at board meetings, while providing support and guidance to promote meaningful discussion and, ultimately, informed and effective decision-making. In addition, each director has a statutory duty to disclose actual or potential conflicts of interest. In accordance with the criteria set out in the Code, the chair was considered independent at the time he was appointed. NEDs are required to provide sufficient information to allow the board to evaluate their independence prior to and following their appointment. Formal procedures are in place for new potential conflicts to be reported and recorded during the year. As a consequence of regular reviews in 2023, the board is satisfied that there were no matters giving rise to conflicts of interest which could not be authorized by the board. It has therefore concluded that all bp NEDs are independent.

Reporting in line with Listing Rule 9.8.6R(10)

As at 31 December 2023, 50% of the board comprises women, our SID is a woman and three directors identify as from an ethnic minority background. Following Kate Thomson's appointment to the board as chief financial officer (CFO) in 2024 and as at the date of publication of this report, 54% of the board comprises women, two senior board positions are held by women and three directors identify as being from an ethnic minority background. Data for the below tables is collected on an annual basis through a standardized process under which each member of the board and executive management is asked to self-declare, or elect not to declare, their ethnic background and gender identity or sex. The information is correct as at 31 December 2023. For the purposes of this table, executive management includes bp's leadership team and the company secretary.

Gender identity or sex	Number of board members	Percentage of the board	Number of senior positions on the board (CEO, SID and chair)	Number in executive management	Percentage of executive management
Men	6	50%	2	5	42%
Women	6	50%	1	7	58%
Other categories	–	–	–	–	–
Not specified/prefer not to say	–	–	–	–	–

Ethnic background	Number of board members	Percentage of the board	Number of senior positions on the board (CEO, SID and chair)	Number in executive management	Percentage of executive management
White British or other white (including minority-white groups)	9	75%	3	11	92%
Mixed/Multiple Ethnic Groups	–	–	–	–	–
Asian/Asian British	3	25%	–	1	8%
Black/African/Caribbean/Black British	–	–	–	–	–
Other ethnic group, including Arab	–	–	–	–	–
Not specified/prefer not to say	–	–	–	–	–

★ See glossary on **page 373**

Directors' statements

Statement of directors' responsibilities

The directors are responsible for preparing the annual report and the financial statements in accordance with applicable law and regulations. The directors are required by the UK Companies Act 2006 to prepare financial statements for each financial year that give a true and fair view of the financial position of the group and the parent company and the financial performance and cash flows of the group and parent company for that period. Under that law they are required to prepare the consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as adopted by the United Kingdom and applicable law and have elected to prepare the parent company financial statements in accordance with applicable United Kingdom law and United Kingdom accounting standards (United Kingdom generally accepted accounting practice), including FRS 101 'Reduced Disclosure Framework'. In preparing the consolidated financial statements the directors have also elected to comply with IFRS as issued by the International Accounting Standards Board (IASB) and IFRS as adopted by the European Union (EU).

In preparing those financial statements, the directors are required to:

- Select suitable accounting policies and then apply them consistently.
- Make judgements and estimates that are reasonable and prudent.
- Present information, including accounting policies, in a manner that provides relevant, reliable, comparable and understandable information.
- Provide additional disclosure when compliance with the specific requirements of IFRS is insufficient to enable users to understand the impact of particular transactions, other events and conditions on the group's financial position and financial performance.
- State that applicable accounting standards have been followed, subject to any material departures disclosed and explained in the parent company financial statements.
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business.

The directors are responsible for keeping adequate accounting records that disclose with reasonable accuracy at any time the financial position of the group and company and enable them to ensure that the consolidated financial statements comply with the Companies Act 2006 and the parent company financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the group and company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Having made the requisite enquiries, so far as the directors are aware, there is no relevant audit information (as defined by Section 418(3) of the Companies Act 2006) of which the company's auditors are unaware, and the directors have taken all the steps they ought to have taken to make themselves aware of any relevant audit information and to establish that the company's auditors are aware of that information.

Each of the current directors, whose names and functions are listed on **pages 83-85**, confirms that to the best of their knowledge:

- The consolidated financial statements, prepared on the basis of IFRS as issued by the IASB, IFRS as adopted by the United Kingdom and EU and in accordance with the provisions of the Companies Act 2006 as applicable to companies reporting under international accounting standards, give a true and fair view of the assets, liabilities, financial position and profit or loss of the group.
- The parent company financial statements, prepared in accordance with United Kingdom generally accepted accounting practice, give a true and fair view of the assets, liabilities, financial position, performance and cash flows of the company.
- The management report, which is incorporated in the strategic report and directors' report, includes a fair review of the development and performance of the business and the position of the group, together with a description of the principal risks and uncertainties that they face.

Helge Lund
Chair
8 March 2024

UK Corporate Governance Code compliance

Throughout 2023, bp applied the principles of the UK Corporate Governance Code 2018 (Code) and has complied with all the provisions. The information set out in the Directors' report, including the committee reports on **pages 94-132**, is intended to provide an explanation of how bp applied the principles and complied with the provisions of the Code during the year. The Code can be found on the Financial Reporting Council website: **frc.org.uk**

Risk management and internal control

Under the Code, the board is responsible for the company's risk management and internal control systems. In discharging this responsibility the board, through its governance principles, requires the chief executive officer to operate the company with a comprehensive system of controls and internal audit to identify and manage the risks, including emerging risks that are material to bp. In turn, the board, through its monitoring processes, satisfies itself that these material risks are identified and understood by management and that systems of risk management and internal control are in place to mitigate them. These systems are reviewed periodically by the board, have been in place for the year under review and up to the date of this report and are consistent with the requirements of Principle O of the Code.

The board has processes in place to:

- Assess the principal and emerging risks facing the company.
- Monitor the company's system of internal control (which includes the ongoing process for identifying, evaluating and managing the principal and emerging risks).
- Review the effectiveness of that system annually.

Acquired businesses which have not transitioned into bp's system of internal control and non-operated joint ventures and associates★ have not been dealt with as part of this process.

A description of the principal risks facing the company, including those that could potentially threaten its business model, future performance, solvency or liquidity, is set out in Risk factors on **pages 77-79**. During 2023 the board undertook a robust assessment of the principal and emerging risks facing the company. The principal means by which these risks are managed or mitigated are set out on **page 73-76**.

In assessing the risks faced by the company and monitoring the system of internal control, the board and the audit and safety and sustainability committees requested, received and reviewed reports from executive management, including management of the business segments, corporate activities and any functions, at their regular meetings. A report by each of these committees, including its activities during the year, is set out on **pages 94-132**.

During 2023 the committees, as relevant, also met with management, the SVP internal audit and other monitoring and assurance functions (including group ethics & compliance, safety and operational risk, group control, group legal and group risk) and the external auditor. Responses by management to incidents that occurred were considered by the relevant committee or the board, as appropriate.

At a meeting in March 2024, the audit committee considered reports from the group risk function on the system of internal control and the function's categorisation of significant failings or weaknesses. The audit committee also considered a report from internal audit on their assessment of bp's systems of internal control and risk management, based on audit work conducted during 2023. In considering these reports and assessments, the audit committee noted that bp's systems of internal control and risk management is designed to manage, rather than eliminate, the risk of failure to achieve business objectives and can only provide reasonable, and not absolute, assurance against material misstatement or loss.

The board then considered the review undertaken by the audit committee and the proposed disclosures outlining the company's risk management and internal control systems prior to publication of the annual report and accounts.

A statement regarding the company's internal controls over financial reporting is set out on **page 133**.

Longer-term viability

In accordance with provision 31 of the Code, the directors have assessed the prospects of the company over a period significantly longer than 12 months. The directors believe that a viability assessment period of three years remains appropriate. This assessment is based on management's reasonable expectations of the position and performance of the company over this period, its internal detailed budgets and planning timeframes and the targets and aims that it has set out.

Our risk management system, described in how we manage risk starting on **page 73**, outlines our risk identification, assessment and management approach for all risks, including our principal risks, described starting on **page 77**.

Taking into account the company's current position and its principal risks, the directors have a reasonable expectation that the company will be able to continue in operation and meet its liabilities as they fall due over the next three years.

The directors' assessment included a review of the potential financial impact of, and the financial headroom that could be available in the event of, the most severe but plausible scenarios that could threaten the viability of the company. The assessment took into consideration the robust financial position of the group and the potential mitigations that management reasonably believes would be available to the company over this period. Mitigations considered include use of cash, access to debt facilities and credit lines, raising of capital, reductions in capital expenditure, divestments and dividend reductions.

The scenarios that have been modelled are based on the most severe but plausible outcomes and associated costs are based on actual experience where possible. The scenarios have been considered individually and as a cluster of events. They include:

- A significant process safety incident when operating facilities, drilling wells or transporting hydrocarbons.
- A sustained significant decline in oil prices over three years.
- A significant cyber security incident.
- A loss of a significant market or producing asset for six months.

The directors also considered the impact on viability from an extended pandemic scenario, as well as the potential risks associated with climate change and the transition to a lower carbon economy. They consider that the most likely impacts of these risks are broadly captured and modelled through the sustained low oil price and loss of a producing asset scenarios.

In assessing the prospects of the company, the directors noted that such assessment is subject to a degree of uncertainty that can be expected to increase looking out over time and, accordingly, that future outcomes cannot be guaranteed or predicted with certainty.

Fair, balanced and understandable

The board considers the annual report and financial statements, taken as a whole, is fair, balanced and understandable and provides the information necessary for shareholders to assess the company's position and performance, business model and strategy.

Going concern

In accordance with provision 30 of the Code, the directors consider it appropriate to adopt the going concern basis of accounting in preparing the financial statements.

Forecast liquidity has been assessed under a number of stressed scenarios to support this assertion. Reverse stress tests performed indicated that the group will continue to operate as a going concern for at least 12 months from the date of approval of the financial statements even if the Brent price fell to zero. For further information on financial risk factors, including liquidity risk, see Financial statements – Note 29.

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Consolidated financial statements of the bp group

Notes on financial statements

Supplementary information on oil and natural gas (unaudited)

Parent company financial statements of BP p.l.c.

Consolidated financial statements of the bp group

Independent auditor's report to the members of BP p.l.c.

Report on the audit of the financial statements

1. Opinion

In our opinion:

- The financial statements of BP p.l.c. (the 'parent company' or 'bp') and its subsidiaries (the 'group' or 'bp') give a true and fair view of the state of the group's and of the parent company's affairs as at 31 December 2023 and of the group's profit for the year then ended.
- The group financial statements have been properly prepared in accordance with United Kingdom adopted international accounting standards and International Financial Reporting Standards (IFRSs) as issued by the International Accounting Standards Board (IASB) and as adopted by the European Union (EU).
- The parent company financial statements have been properly prepared in accordance with United Kingdom accounting standards (United Kingdom generally accepted accounting practice), including FRS 101 'Reduced Disclosure Framework'.
- The financial statements have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements of BP p.l.c which comprise the:

- group and parent company income statements
- group and parent company statements of comprehensive income
- group and parent company statements of changes in equity
- group and parent company balance sheets
- group cash flow statement
- group related Notes 1 to 38 to the financial statements, including a summary of material accounting policy information and
- parent company related Notes 1 to 14 to the financial statements, including a summary of material accounting policy information.

The financial reporting framework that has been applied in the preparation of the group financial statements is applicable law, United Kingdom adopted international accounting standards and IFRSs as issued by the IASB and as adopted by the EU. The financial reporting framework that has been applied in the preparation of the parent company financial statements is applicable law and United Kingdom accounting standards, including FRS 101 'Reduced Disclosure Framework' (United Kingdom generally accepted accounting practice).

2. Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the auditor's responsibilities for the audit of the financial statements section of our report.

We are independent of the group and the parent company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the Financial Reporting Council's (the 'FRC's') Ethical Standard as applied to listed public interest entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements. The non-audit services provided to the group and parent company for the year are disclosed in Note 36 to the financial statements. We confirm that we have not provided any non-audit services prohibited by the FRC's Ethical Standard to the group or the parent company.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

3. Summary of our audit approach

Key audit matters	The key audit matters that we identified in the current year were: • potential impact of climate change and the energy transition • impairment of upstream oil and gas property, plant and equipment (PP&E) assets • decommissioning provisions • accounting for complex transactions executed to deliver against the wider group strategy • valuation of commodity financial derivatives, where fraud risks may arise in revenue recognition, and • management override of controls. We have not included a key audit matter in respect of 'IT controls relating to financial systems' as there have been no new significant issues arising from our testing of financial systems. We also revisited the key audit matter of accounting for complex transactions and valuation of commodity financial derivatives identified in the prior year and concluded that given the evolving nature of these risks in the business and our response thereto, it would be appropriate to identify them as two separate key audit matters. All other key audit matters are consistent with those we identified in the prior year and the developments in fact patterns of these previously identified key audit matters are explained in the respective sections below.
Materiality	The materiality that we used for the group financial statements was $1,000 million (2022 $1,250 million) which was determined based on profit before tax and underlying replacement cost profit before interest and tax. In the prior year we determined materiality using profit before tax adjusted for the exceptional charges of $25.5 billion associated with the decision to exit bp's shareholding in Rosneft and underlying replacement cost profit before interest and tax.
Scoping	Our scope covered 189 consolidation units (cons units). Of these, 138 were full-scope audits and the remaining 51 were subject to specific procedures on certain account balances by component audit teams or the group audit team. These covered 70% of group revenue, 75% of PP&E and 71% of profit before tax. The remaining 743 cons units were subject to other procedures, including performing analytical reviews, making inquiries of management and evaluating and testing management's group-wide controls.

4. Conclusions relating to going concern

In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Our evaluation of the directors' assessment of the group's and parent company's ability to continue to adopt the going concern basis of accounting included:

- considering whether material uncertainties exist that could cast significant doubt on the entity's ability to continue as a going concern for at least 12 months after the date of approval of the financial statements
- assessing the financing facilities including the nature of the facilities, repayment terms and covenants
- assessing whether the impact of potential margin calls in respect of derivative exchange contracts used to risk manage the physical portfolio has been appropriately considered given price volatility
- assessing management's identified potential mitigating actions and the appropriateness of the inclusion of these in the going concern assessment
- testing the clerical accuracy of the going concern model
- assessing the historical accuracy of forecasts prepared by management
- performing our independent sensitivity analysis and
- assessing the disclosures made within the financial statements.

Based on our assessment, we concluded that the assumptions used by management were reasonable overall and the disclosures made within the financial statements were appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the group's and parent company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

In relation to the reporting on how the group has applied the UK Corporate Governance Code, we have nothing material to add or draw attention to in relation to the directors' statement in the financial statements about whether the directors considered it appropriate to adopt the going concern basis of accounting.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

5. Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current year and include the most significant assessed risks of material misstatement (whether or not due to fraud) that we identified. These matters included those which had the greatest effect on the overall audit strategy, the allocation of resources in the audit and directing the efforts of the engagement team.

Throughout the course of our audit, we identify risks of material misstatement ('risks'). We consider both the likelihood of a risk and the potential magnitude of a misstatement in making the assessment. Certain risks are classified as 'significant' or 'higher' depending on their severity. The category of the risk determines the level of evidence we seek in providing assurance that the associated financial statement item is not materially misstated.

This page does not form part of bp's Annual Report on Form 20-F as filed with the SEC.

The matters described below were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

5.1 Potential impact of climate change and the energy transition (impacting PP&E, goodwill, intangible assets, investments in joint ventures and provisions) – Notes 1, 4, 12, 14, 15, 16 and 33	
Key audit matter description	Climate change impacts bp's business in a number of ways as set out in the strategic report on pages 1-80 of the Annual Report and Note 1 of the financial statements on page 169. It represents a strategic challenge and a key focus of management. The related risks that we have assessed for our audit are as follows: • Forecast assumptions used in assessing the value-in-use of oil and gas PP&E assets within bp's balance sheet for impairment testing, particularly oil and gas price assumptions and their interrelationship with forecast emissions costs, may not appropriately reflect changes in supply and demand due to climate change and the energy transition (see 'Impairment of upstream oil and gas PP&E assets' below). • The timing of expected future decommissioning expenditures in respect of oil and gas assets may need to be brought forward with a resulting increase in the present value of the associated liabilities due to the impact of climate change. In addition, there is an exposure to decommissioning obligations that may revert back to bp in respect of assets transferred to third parties through historical divestments. The risk of exposure is increased due to the impacts of climate change which have heightened long term financial resilience concerns for many industry participants. Furthermore, provisions for decommissioning refining assets, not generally recognised on the basis that the potential obligations cannot be measured given their indeterminate settlement dates, might need to be recognised if reductions in demand due to climate change curtail their operational lives (see 'Decommissioning provisions' below). • The recoverability of certain of the group's $4.3 billion total exploration and appraisal (E&A) assets capitalised as at 31 December 2023 (2022 $4.2 billion) is potentially exposed to climate change and the global energy transition risk factors (see Note 15). This is because a greater number of E&A projects may not proceed as a consequence of the energy transition leading to lower forecast future oil and gas prices, bp's intention to reduce its hydrocarbon production (by around 25% by 2030 relative to 2019 – see page 171). The determination of whether and when E&A costs should be written off, impaired, or retained on the balance sheet as E&A assets, remains complex and continues to require significant management judgement. • The carrying value of bp's refining assets within PP&E may no longer be recoverable, due to changes in supply and demand which arise as a consequence of climate change and the energy transition. Management identified impairment indicators in respect of the Gelsenkirchen refinery during the year and, as a result, an impairment test was performed to assess the recoverability of the refinery carrying value. As disclosed in Note 4 to the accounts on page 192, management has recorded an impairment charge of $1.3 billion in respect of the Gelsenkirchen refinery in Germany, primarily driven by changes in economic assumptions. • bp's intention to reduce its hydrocarbon production (by around 25% by 2030 relative to 2019 – see page 171) and the group's wider strategy includes potentially disposing of certain higher emissions intensity upstream oil assets and others. As a consequence, for certain assets and investments judgement is required in the determination of the recoverable amount as to whether it should consider the estimated disposal proceeds from a third party, as a key input. Management recorded $0.1 billion of pre-tax impairment charges in 2023 for such potential disposals but recorded $2.9 billion of such charges in 2022. There is a continuing risk that management judgements taken to determine whether impairment charges are required based on bp's view of whether transactions are likely to proceed or not, and bp's strategic appetite regarding the value of disposal consideration that would be accepted, are not reasonable. • The carrying value of the group's investments in low carbon energy assets may no longer be recoverable due to an increase in the low carbon energy discount rate (the renewable power assets discount rate) as well as increased project development costs, which have been impacted by higher inflation and activity levels within the sector (as a result of the energy transition). These factors are adversely impacting the value of low carbon energy projects, impacting investment decisions. As a result, impairment tests (which include judgements in relation to the fair value of land and sea bed leases, capital and operating cost assumptions and forecast yield and power price assumptions) were performed to assess the recoverability of the group's low carbon energy assets, resulting in an impairment recognised by equity accounted entities of $1.3 billion, as disclosed in Note 16 to the accounts on page 208. • The useful economic lives of the group's refining assets may be shortened as society moves towards 'net zero' emissions targets and bp seeks to achieve its net zero ambition, such that the depreciation charge is materially understated. Of the total refining assets carried in the balance sheet, all but an immaterial residual value relating primarily to land and buildings will be fully depreciated by 2050. As disclosed in Note 1 to the accounts on page 171, management has concluded that demand for refined products is expected to remain sufficient for the existing refineries to continue operating for the duration of their remaining useful lives and hence no changes to the useful economic lives of its refinery assets were required.

- The total goodwill balance as at 31 December 2023 is $12.5 billion, of which $7.0 billion relates to upstream oil and gas assets. The carrying values of goodwill may no longer be recoverable as a consequence of climate change and therefore may need to be impaired. For oil production & operations (OP&O), goodwill is allocated to CGUs in aggregate at the segment level and for gas & low carbon energy (G&LCE) goodwill is allocated to the hydrocarbon CGUs within the segment. The most significant assumption in the goodwill impairment tests affected by climate change relates to future oil and gas prices (see 'Impairment of upstream oil and gas PP&E assets' below). Given the significant level of headroom in the goodwill impairment tests, management identified no other assumption that could lead to a material misstatement of goodwill due to the energy transition and other climate change factors. Disclosures in relation to sensitivities for goodwill are included within Note 14 on page 205. The customers & products (C&P) segment has a goodwill balance of $5.4 billion, of which the most significant element is $2.7 billion relating to the Castrol business. Notwithstanding the expected global transition to electric vehicles which may reduce demand for Lubricants, due to the substantial headroom in the most recent impairment test (as described in Note 14), management has assessed as remote the likelihood that the recoverable amount of goodwill is less than its carrying value.
- Climate change-related litigation brought against bp, as disclosed in Note 33 to the financial statements, may lead to an outflow of funds requiring provision.

The above considerations were a significant focus of management during the period which led to this being a matter that we communicated to the audit committee, and which had a significant effect on the overall audit strategy. We therefore identified this as a key audit matter.

How the scope of our audit responded to the key audit matter

Overall response

We held discussions with management, with our climate change specialists and within the group engagement team to identify the areas where we felt climate change could have a potential impact on the financial statements.

We also continued to utilise a climate change steering committee comprising a group of senior partners and specialists with specific climate change and technical audit and accounting expertise within Deloitte to provide an independent challenge to our key decisions and conclusions with respect to this area.

Audit procedures

The audit response related to two of the audit risks identified is set out under the key audit matters for 'Impairment of upstream oil and gas PP&E assets' on pages 143-145 and 'Decommissioning provisions' on pages 146-147. Other procedures are as follows:

In respect of the recoverability of E&A assets capitalised as at 31 December 2023:

- We tested the relevant controls within the group's E&A write-off and impairment assessment processes.
- We challenged and evaluated management's key E&A judgements with regards to the impairment criteria of IFRS 6. Where impairment indicators were identified, we corroborated key judgements with internal and external evidence for assets that remained on the balance sheet. This included analysing evidence of future E&A plans, budgets and capital allocation decisions, assessing management's key accounting judgement papers, reading meeting minutes and assessing licence documentation and evidence of active dialogue with partners and regulators including negotiations to renew licences or modify key terms.

We considered the impact of potential changes in supply and demand on the group's refining portfolio and reviewed internal and external market studies of future supply and demand. In relation to the Gelsenkirchen refinery impairment test, we assessed the valuation methodology, tested the integrity and mechanical accuracy of the impairment model and assessed the appropriateness of key assumptions and inputs, notably forecast refining margins and energy input costs, challenging and evaluating management's assumptions by reference to third party data where available. We also evaluated management's ability to forecast future cash flows and margins by comparing actual results to historical forecasts and tested management's internal controls over the impairment test and related inputs.

We challenged management's analysis that identified the specific assets that are likely to be disposed of by bp as part of its strategy. Where relevant, we challenged bp's asset impairment assessments based on their estimated disposal proceeds and whether transactions are judged likely to proceed or not. We obtained evidence of any negotiations with third parties, considered bp's strategic intent in this context and challenged management's assessment of the recoverable amounts for material transactions. We also tested relevant controls which covered both the recoverable amounts determined and the likelihood of transaction completion.

In respect of the impairment tests performed on certain offshore wind asset low carbon energy investments, we tested the result by:

- Testing the relevant controls over these low carbon energy impairment tests including controls over key assumptions and the discount rate
- Assessing the low carbon energy discount rate with input from our valuation specialists
- Challenging and evaluating the key assumptions within the impairment tests. This included the fair value of land and sea bed leases, capital and operating cost assumptions, and forecast yield and power price assumptions impacting the fair value of the development project and
- Testing the mechanical accuracy of the impairment models.

	We challenged management's assertion that no changes are required to the assessed useful economic lives of refining assets as a consequence of climate change factors. In doing this, we obtained third party reports assessing future refined petroleum product demand for those countries which are included in our group full audit scope for the C&P segment. In particular, we considered the forecasts as set out in the IEA World Energy Outlook 2023 which shows that demand for refined petroleum products is expected to remain sufficient for at least the current remaining useful economic lives of the refineries such that current depreciation rates are appropriate, including under the Announced Pledges Scenario which is associated with a temperature rise of 1.7 °C in 2100 (with a 50% probability). We performed procedures to satisfy ourselves that, other than future oil and gas price assumptions, there were no other assumptions in management's oil and gas goodwill impairment tests to which reasonably possible changes due to the energy transition and other climate change factors could cause goodwill to be materially misstated. We obtained evidence which supported management's conclusion that goodwill relating to the C&P segment activities is not impaired due to climate change or other factors. With regard to climate change litigation, we designed procedures specifically to respond to the risks that provisions could be understated or that contingent liability disclosures may be omitted or be inaccurate including: • Holding discussions with the group general counsel and other senior bp lawyers regarding climate change matters • Conducting a search for climate change litigation and claims brought against the group • Making written inquiries of, and holding discussions with, external legal counsel advising bp in relation to climate change litigation and • Assessing the contingent liability disclosures in the annual report on pages 241-243. We read the other information included in the Annual Report and considered (a) whether there was any material inconsistency between the other information and the financial statements; or (b) whether there was any material inconsistency between the other information and our understanding of the business based on audit evidence obtained and conclusions reached in the audit.
Key observations	Key observations in relation to oil and gas price assumptions used in oil and gas PP&E asset impairment tests, and the impact of climate change on decommissioning provisions are set out in the relevant key audit matter below. We concluded that the key E&A assessments had been appropriately determined and the judgements management had made were appropriately supported. We did not identify any additional impairments or write-offs from the work we performed. We also confirmed management's view that they did not consider that the progression of any of their E&A assets would be inconsistent with bp's current strategy and management's capital frame and capital allocation intentions in light of climate change and the energy transition. We are satisfied: • with the results of our procedures relating to the carrying value of refining assets and that the impairments recorded are reasonable • that management's planned disposal related asset impairment assessments are reasonable and we did not identify any additional material impairments • with the results of the low carbon energy impairment tests. The discount rate used by management was within the range that we would have expected • with the results of our procedures relating to the assessment of the useful economic lives of refining assets and therefore depreciation charges, based on the market studies we read • with the sensitivity analysis disclosures around the energy transition and other climate change factors performed in respect of the goodwill balances; and that the group's goodwill balances are not materially misstated • with management's assertion that no provision should currently be made in respect of climate change litigation. Based on the audit evidence obtained both from internal and external legal counsel, we concluded that management's disclosure of the contingent liabilities in respect of these matters is appropriate and • that management's other disclosures in the Annual Report relating to climate change are consistent with the financial statements and our understanding of the business. Whilst many of bp's oil and gas properties and refining assets are long term in nature, by 2050, the remaining carrying value of assets currently being depreciated will be immaterial, this date being the target set by the majority of governments with 'net zero' emissions targets and also by bp, being Aim 1 of the 'Getting to net zero' strategy set out on page 48. At current rates of depreciation, depletion and amortisation (DD&A), the average remaining depreciable life of the upstream oil and gas PP&E (within the OP&O and G&LCE segments) is six years and the refining assets (within the C&P segment) is twelve years.

5.2 Impairment of upstream oil and gas property, plant and equipment (PP&E) assets – Notes 1, 4 and 12 to the financial statements

Key audit matter description

The group balance sheet as at 31 December 2023 includes PP&E of $105 billion (2022 $106 billion), of which $62 billion (2022 $68 billion) is oil and gas properties.

Management's best estimate of oil and gas price assumptions for value-in-use impairment tests were revised in 2023 as set out in Note 1 on page 177. Brent oil price and Henry Hub assumption revisions during 2023 were not significant.

Management has also revised bp's 'best estimate' discount rate assumptions for value-in-use impairment tests in 2023, as set out in Note 1 on page 177. bp's post-tax nominal weighted average cost of capital, being the starting point for setting discount rates used for impairment testing for oil and gas assets, has increased to 8% (2022 7%), reflecting the impact of observable increases in risk free rates on bp's weighted average cost of capital.

Given the significance of the discount rate assumption revisions during 2023, alongside certain CGU specific new indicators, management has tested all oil and gas CGUs for impairment and/or impairment reversal during the year. Management recorded $3.6 billion (2022 $2.2 billion) of pre-tax oil and gas CGU impairment charges, principally due to the discount rate revisions detailed above, price revisions, increase in certain capital expenditure forecasts, operating expenditure forecasts and certain reserves write downs. Further information has been provided in Note 1 on page 177 and Note 4 on page 191.

We identified three key management estimates in management's determination of the level of impairment charge and/or impairment reversal. These are:

Oil and gas prices - bp's oil and gas price assumptions have a significant impact on many CGU impairment assessments performed across the OP&O and G&LCE segments and are inherently uncertain. The estimation of future prices is subject to increased uncertainty given climate change, the global energy transition, macro-economic factors and disruption in global supply due to ongoing geo-political conflicts. There is a risk that management do not forecast reasonable 'best estimate' oil and gas price forecasts when assessing CGUs for impairment charge and/or impairment reversal, leading to material misstatements. These price assumptions are highly judgmental and are pervasive inputs to bp's oil and gas CGU valuation. There is also a risk that management's oil and gas price related disclosures are not reasonable.

bp's oil and gas price assumptions for value-in use impairment assessments are aligned with bp's investment appraisal assumptions, except that potential future emissions costs that could be borne by bp are included in investment appraisals as bp costs without assuming incremental revenue.

As described in Note 1 on page 170, emissions costs forecasts interrelate with bp's oil and gas prices, because bp's price assumptions for value-in-use estimates represent 'net producer prices', i.e., net of any further emissions costs that may be enacted in the future. Management's judgement is that the potential impact of such further emissions costs being borne by producers including bp is not expected to have a material impact on bp's oil and gas CGU carrying values as costs would effectively be borne by oil and gas end users via overall higher commodity prices. There is a risk that management's judgement is not reasonable.

Discount rates – Given the long timeframes involved, certain CGU impairment assessments are sensitive to the discount rate applied. Discount rates should reflect the return required by the market and the risks inherent in the cash flows being discounted. There is a risk that management does not assume reasonable discount rates, adjusted as applicable for country risks and relevant tax rates, leading to material misstatements. Determining a reasonable discount rate is highly judgmental and, consistent with price assumptions above, the discount rate assumption is also a pervasive input across bp's oil and gas CGU valuations, before adjustments for asset specific risks and tax rates.

Reserves and resources estimates – A key input to certain CGU impairment assessments is the oil and gas production forecast, which is based on underlying reserves estimates and field specific development assumptions. Certain CGU production forecasts include specific risk adjusted resource volumes, in addition to proven and/or probable reserves estimates, that are inherently less certain than reserves; and assumptions related to these volumes can be particularly judgemental. There is a risk that material misstatements could arise from unreasonable production forecasts for individually material CGUs and/or from the aggregation of systematic flaws in bp's reserves and resources estimation policies across the OP&O and G&LCE segments.

We identified certain individual CGUs with a total carrying value of $18 billion (2022 $17 billion) which we determined would be most at risk of material impairment charges as a result of a reasonably possible change in the oil and gas price assumptions. This population includes $5 billion of previously impaired assets which are also at risk of material impairment reversal resulting from potential oil and gas price assumption changes. We identified that a subset of these CGUs was also individually materially sensitive to the discount rate assumption. Accordingly, we identified these as significant audit risks.

We also identified CGUs with a further $2 billion (2022 $13 billion) of combined carrying value which were less sensitive. We identified these as a higher audit risk as they would be potentially at risk, in aggregate, to a material impairment by a reasonably possible change in some or all of the key assumptions. No impairment reversals are available for these CGUs. Further information regarding these sensitivities is given in Note 1 on page 178.

Impairment charge and/or impairment reversal assessments of upstream oil and gas PP&E assets remain a key audit matter because recoverable values are reliant on forecasts that are inherently judgemental and complex for management to estimate, and the magnitude of the potential misstatement risk is material to the group.

How the scope of our audit responded to the key audit matter	We tested relevant internal controls over the estimation of oil and gas prices, discount rates, and reserve and resources estimates, as well as key internal controls over the performance of the impairment charge and/or impairment reversal assessments where we identified audit risks. In addition, we conducted the following substantive procedures. **Oil and gas prices** • We independently developed a reasonable range of forecasts based on external data obtained, against which we compared management's oil and gas price assumptions in order to challenge whether they are reasonable. • In developing this range, we obtained a variety of reputable and reliable third party forecasts, peer information and other relevant market data. • In challenging management's price assumptions, we considered the extent to which they and each of the forecast pricing scenarios obtained from third parties reflect the impact of lower oil and gas demand due to climate change and the energy transition. • The 2015 Conference of the Parties (CoP) 21 Paris Agreement goals of 'holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels' was reaffirmed at CoP 28 in Dubai during December 2023. We specifically analysed third party forecasts stated, or interpreted by us, as being consistent with scenarios achieving the Paris 'well below 2°C goal' and/or '1.5°C ambition' and evaluated whether they presented contradictory audit evidence. • We challenged and evaluated management's judgement, described in Note 1 on page 170, that the potential impact of further emission costs being borne by producers including bp is not expected to have a material impact on bp's oil and gas CGU carrying values. We obtained evidence supporting that oil and gas price forecasts included in our reasonable range are forecast on a 'net producer prices' basis, (i.e., net of potential future emissions costs that are assumed to be borne by oil and gas end users), consistent with the basis of bp's value-in-use price assumptions. • We assessed management's disclosures in Note 1, including the sensitivity of forecast revenue cash inflows to lower oil and gas prices and how climate change and the energy transition, potential future emissions costs and/or reduced demand scenarios may impact bp to a greater extent than currently anticipated in bp's value-in-use estimates for oil and gas CGUs. **Discount rates** • We independently evaluated bp's discount rates used in impairment tests with input from our valuation specialists, against relevant third party market and peer data. • When performing procedures over specific assets, we assessed whether specific country risks and tax adjustments were reasonably reflected in bp's discount rates. • We challenged and evaluated management's disclosures in Note 1, including in relation to the sensitivity of discount rate assumptions. **Reserves and resources estimates** With the assistance of our oil and gas reserves specialists we: • assessed bp's reserves and resources estimation methods and policies for reasonableness • assessed how these policies had been applied to a sample of bp's reserves and resources estimates which included those that we judged to represent the greatest risk of material misstatement • read and evaluated a sample of reports provided by management's external reserves experts and assessed the scope of work and findings of these third parties • assessed the competence, capabilities and objectivity of bp's internal and external reserve experts, through understanding their relevant professional qualifications and experience • assessed whether management's production forecasts are consistent overall with bp's strategy, including the group's expectation to reduce its hydrocarbon production (by around 25% by 2030 relative to 2019 - see page 171) • compared the production forecasts used in the impairment tests with management's approved reserves and resources estimates and • performed a retrospective assessment in order to assess management's ability to accurately estimates reserves and resources and to check for indications of estimation bias over time.

Key observations

Oil and gas prices

For the purpose of PP&E impairment tests, management is required under IAS 36 to apply its current 'best estimate' of future oil and gas prices. We determined that bp's 'best estimate' assumptions are reasonable when compared against a range of third party forecasts and peer information that we identified as being appropriate for this purpose. In forming this view, we included each forecaster's 'base case', 'central case' or 'most likely' estimate.

We further observed that, as well as publishing a 'base case', 'central case' or 'most likely' estimate, certain third party price forecasters (including the IEA and the WBCSD Catalogue from April 2023) published other price forecasts including some that were stated as, or were interpreted by us as being, Paris 'well below 2°C goal' or Paris '1.5°C ambition' scenarios. We observed that none of those third party forecasters described their 'Paris consistent' scenarios as their 'base case', 'central case' or 'most likely' estimate.

Management notes on page 170 that they consider their 'best estimate' prices to be in line with a range of transition paths consistent with the Paris climate goal of limiting global warming to well below 2°C as well as the ambition to limit global warming to no greater than 1.5°C. We observed that for oil, whilst being within the lower half of our range of 'best estimate' forecasts described above, bp's Brent price assumptions were overall within the higher half of our range of Paris 'well below 2°C goal' and '1.5°C ambition' scenarios. For Henry Hub gas, management's updated gas price assumptions until 2050 sit towards the middle of our range. The positioning of bp's revised oil and gas forecasts within the range is broadly consistent with bp's positioning in the prior period range. We also noted certain other reputable third party sources that set out or implied even higher prices under both Paris 'well below 2°C goal' and '1.5°C ambition' scenarios, highlighting the large inherent uncertainty regarding 'Paris consistent' pathways and the very wide range of potential price forecasts. Accordingly, we consider management's statement as set out above to be reasonable.

By inquiry and analysis, we confirmed that the third party oil and gas price forecasts used to develop our independent range are on a net producer price basis. Accordingly, we are satisfied management's judgement is reasonable that the potential impact of further emission costs being borne by bp is not expected to have a material impact on the group's oil and gas CGU carrying values.

We reviewed the disclosures included in Note 1 to the accounts in respect of oil and gas price assumptions, including the sensitivity analysis presented therein. We observed that management's downside sensitivity, in which oil and gas prices are lower than the 'best estimate' in all future periods, is broadly in the middle of our range of third party Paris 'well below 2°C goal' and Paris '1.5°C ambition' scenarios between 2025 and 2030 and thereafter close to the bottom of the range for both Brent oil and Henry Hub gas.

Discount rates

bp's post-tax nominal 8% weighted average cost of capital, being the starting point for setting discount rates used for impairment testing for oil and gas assets, was within the independent range calculated by our valuation specialists.

We were also satisfied with the calculation of country risk premia. Accordingly, we are satisfied with the discount rates used in the impairment charge and impairment reversal testing.

Reserves and resources

We assessed the production forecasts used in the oil and gas CGU valuations that we tested to be reasonable and appropriately risked where applicable, for the purposes of management's impairment tests.

We observed that in aggregate, management's production forecasts, as utilised in year end oil and gas CGU impairment testing, are aligned with bp's target to reduce hydrocarbon production by 25% of 2019 levels by 2030.

5.3 Decommissioning provisions - Note 1 and 23	
Key audit matter description	A decommissioning provision of $12.4 billion is recorded in the financial statements as at 31 December 2023 (2022 $12.3 billion). The estimation of decommissioning provisions is a highly judgemental area as it involves a number of key estimates related to the cost and timing of decommissioning, in particular inflation and discount rate assumptions. Given management expects upstream hydrocarbon production to be around 25% lower by 2030 relative to 2019 as stated on page 171, consistency of that expectation with the timing of decommissioning expenditure and underlying cost assumptions remains a key consideration. Consistent with prior years, management estimates that the average rate of forecast inflation applicable to the substantial majority of bp's decommissioning cost estimates is 1.5%, which is 0.5% lower than its estimated long term general inflation rate of 2%. The extent to which average future decommissioning cost inflation will differ from the general inflation rate depends on industry demand and supply of rigs and other relevant services at the time future decommissioning occurs, which in turn will be influenced by future oil and gas demand, and increasingly by structural changes in the industry supply chain driven by the energy transition, which are uncertain. With the impact of inflation on relevant costs now better understood and able to be factored into cost estimates, and general inflationary pressures easing in some areas during 2023, we considered this judgement to be a higher rather than a significant audit risk for 2023. The estimated undiscounted cost of the obligations and the timing of future payment are set out in Note 1 on page 184. Economic factors, future activities and the legislative environments that bp operates in are used to inform cost estimates, whereas the timing of decommissioning activities is dependent on cessation of production (CoP) dates, which are sensitive to changes in bp's price forecasts as price estimates determine economic cut off of oil and gas reserve estimates. bp increased its discount rate used in calculating its decommissioning provisions from 3.5% as at 31 December 2022 to 4.0% as at 31 December 2023. The increase was primarily driven by the increased US treasury bond rates. Additionally, bp is exposed to decommissioning obligations that could revert back to the group in respect of historical divestments to third parties. Judgement is required to assess the potential risk of reversion and if applicable, the estimated exposure, for each historically divested asset. The risk of reversion could be elevated by the potential impact of the energy transition, in particular the potential for lower oil and gas prices in the longer term which could result in financial resilience concerns for some industry participants. The risk further increased following a US legal judgement in 2020 which required a specific provision and increased the likelihood of decommissioning liabilities reverting to former owners as part of a bankruptcy proceeding. Provisions for decommissioning refining assets, not generally recognised on the basis that the potential obligations cannot be measured given their indeterminate settlement dates, might need to be recognised if reductions in demand due to climate change curtail their operational lives. As disclosed in Note 1 on page 184 management concluded that, although obligations may arise if refineries cease manufacturing operations, they would only be recognised at the point when sufficient information became available to determine potential settlement dates. Accordingly, other than where a decision has been made to cease refining operations, no triggers for assessing the need to record a decommissioning provision have been identified.
How the scope of our audit responded to the key audit matter	**Long term inflation rate** • We tested the control related to the determination of the decommissioning specific inflation rate assumption. • We tested how management derived the decommissioning specific inflation rate assumption of 1.5%, and the evidence on which it is based, by gaining an understanding of the process used by management, testing management's calculations of the assumption, and evaluating the evidence relevant to management's assumption, both supporting and contradictory. • As the 1.5% decommissioning specific inflation rate assumption is determined by making an adjustment to management's 2.0% general long term inflation rate assumption, we evaluated the general long term inflation rate assumption used of 2.0%, comparing it against latest external market data. • We made inquiries and evaluated the competence, capabilities and objectivity of management's decommissioning experts who derived the decommissioning specific inflation rate. • We inspected analyst forecasts and reports in respect of the future decommissioning market and related costs for evidence of supporting and contradictory evidence, with particular focus on the future rig market. • We particularly considered the expectation that demand for oil and gas products and related activities will decrease, primarily in response to climate change and energy transition effects pivoting future energy industry investment and development activity towards renewable sources. We challenged and evaluated management's assessment of the impact this will have on the decommissioning market and related inflation assumption. • We analysed historical trends of rig market rates against oil prices and historical inflation to challenge management's assumption that the decommissioning inflation assumption does not inflate at the same rate as general inflation.

Cost and timing estimates

- We tested the controls over the year end decommissioning cost and timing assumptions used within management's decommissioning provision estimate.
- We assessed the completeness and accuracy of the assets subject to decommissioning, including understanding the process to establish whether a legal or constructive obligation existed.
- We evaluated changes in key cost assumptions including rig rates, vessel rates, well plug and abandonment duration and non-productive time assumptions.
- We challenged whether the impact of inflation experienced in 2023 was appropriately considered and reflected where relevant within bp's cost assumptions.
- We assessed the reasonableness of key cost assumptions with reference to internal and appropriate third party data.
- We assessed changes in assumptions for the estimated date of decommissioning and evaluated whether CoP dates used for decommissioning estimation are aligned with CoP assumptions in other areas, including PP&E impairment testing and oil and gas reserve estimation.
- We assessed the accuracy of bp's disclosure of the estimated undiscounted cost of its obligations and the timing of future decommissioning payments.

Discount rates

- We tested the control related to the determination of the discount rate assumption.
- We assessed the reasonableness of management's methodology for determining the discount rate and recalculated the discount rate with reference to independent third party data, most notably US treasury bond yields.

Reversion risk

- We obtained an understanding of bp's decommissioning reversion risk assessment process and tested relevant internal controls including those controls over the completeness and accuracy of the previously divested asset data.
- We challenged and evaluated management's key judgements related to the decommissioning reversion risk and conclusions as to whether any additional provision should be recognised, or specific contingent liability disclosure made. We assessed the relevant internal and external evidence used in forming this judgement, including the financial health of the counterparty or counterparties in the ownership chain for the divested assets and the existence of any other pertinent factors which could indicate a higher probability of decommissioning obligations reverting to bp.

Potential decommissioning of refinery assets

- We challenged and evaluated management's analysis which supported the judgement that no decommissioning provisions should be recognised in respect of refineries where there is ongoing activity and management has no current intention to cease these activities.
- We have reviewed analysis undertaken by management, as well as third party studies, of forecast demand for refined products in regions served by bp's refineries. Furthermore, we read external profitability benchmarking which supported a conclusion that the group's remaining refineries would likely remain operational for longer than many of their regional competitors, in the event of refining capacity reductions.
- We also met with refinery management to understand the potential plans under consideration for refineries in the future and obtained evidence that management is developing plans for the existing refinery sites remaining in the portfolio which would be compatible with net zero emissions, for instance through the production of alternative low carbon and sustainable fuels.

Key observations

We concluded that the assumed inflation rate of 1.5% remains reasonable as a long-term inflation rate for decommissioning liabilities. We accept as reasonable that the high level of general inflation experienced in 2023 does not require a change to bp's long term average inflation assumption. With respect to the extent to which average future decommissioning cost inflation will differ from the general inflation rate, which is influenced by the demand and supply of rigs and other relevant services at the time future decommissioning occurs, we concluded that market forecasts support the assertion that demand for rigs will not increase in the long term as a result of the impact of the energy transition and therefore that inflation of rig costs will be limited.

We concluded that the cost and timing assumptions used in the decommissioning provision calculation were reasonable and the assumptions are appropriately supported by industry data. The disclosure included on page 184 with respect to the estimated undiscounted cost of bp's decommissioning obligations and the timing of future decommissioning payments are consistent with these conclusions.

Based on our audit procedures, we consider bp's increased 4.0% discount rate to be reasonable.

No material additional decommissioning provisions have been made in respect of historical divestments where bp are exposed to decommissioning reversion risk as a result of the potential future bankruptcy of the current asset owner. Based on our review and challenge of management's assessment, we consider this judgement to be reasonable. We also consider the contingent liability disclosure to be reasonable.

In respect of the group's refining assets, taking into consideration both the IEA demand forecasts and management's strategic plans for the group's refineries, including developing production of low carbon and sustainable fuels, we are satisfied that it is not currently possible for management to determine closure dates for the remaining operational refineries or estimate reliably a settlement date for any decommissioning obligations prior to a decision being made to cease refining operations. Accordingly, we have not identified any triggers that would require a decommissioning provision to be recorded.

5.4 Accounting for complex transactions executed to deliver against the wider group strategy - Notes 1, 20, 22, 29 and 30 to the financial statements

<table>
<tr><td>Key audit matter description</td><td>To support the overall group strategy, which includes achieving bp's group 'net zero' target, bp is increasingly entering into long term arrangements that include gas and renewable power offtake/supply contracts in existing and new markets whilst providing solutions to bp's customers through offering lower carbon hydrocarbons. Given the nature of these transactions, we direct significant audit effort towards challenging management's adopted accounting treatment and/or valuation estimates.

In previous years, such activity was primarily carried out within the trading and shipping (T&S) function. However, such activity can also originate outside of T&S, across segments, functions and/or geographies but in close collaboration with T&S.

These transactions may be complex and have sustainability, legal, tax or financial reporting outcomes which are new for the group and may be executed in reference to, or in conjunction with, existing arrangements. Determining the appropriate accounting treatment for these transactions can require a high degree of management judgement.

Determining the appropriate accounting treatment for these complex transactions:

Based on our risk assessment and understanding of the underlying business rationale of such transactions, we generally consider that complexity arises where the arrangements exhibit one or more of the following indicators:
• Offtake/sale-purchase agreements where the group is the only key customer/supplier;
• The counterparty or the arrangement depends on the group to provide a significant level of financing;
• The group controls exclusive rights, licenses, technology, know-how etc. without which the counterparty cannot conduct its operations or the arrangement cannot be fulfilled;
• The arrangement exposes the group to returns/losses which are disproportionate to those which its economic interest would suggest;
• Contractual arrangements entered into in contemplation of each other; or
• The transaction or arrangement directly impacts key performance indicators, in particular, finance debt.

The presence of any one or a combination of these indicators does not make a transaction or arrangement inherently complex but are factors we consider in our assessment of the risk arising from the transaction.

Accounting for such transactions can be complex and can involve significant judgement, as a feature of these transactions is that they often include multiple elements that will have a material impact on the presentation and disclosure in the financial statements and on key performance measures, including in particular the classification of liabilities as finance debt. Accordingly, we have identified a significant audit risk around the accounting for such transactions.</td></tr>
<tr><td>How the scope of our audit responded to the key audit matter</td><td>For complex accounting transactions identified during the year we:
• Tested controls related to the accounting for complex transactions.
• Developed an understanding of the commercial rationale of the transactions through discussions with management and reading transaction documents and executed agreements.
• For transactions exhibiting certain of the above indicators, performed a detailed accounting analysis leveraging the expertise of technical accounting specialists with experience in commodities markets.

For complex transactions which were identified during the prior years and that continue through 2023, we have refreshed our assessment in 2023 taking account of any amendments to the contracts. We assessed whether the conclusions reached previously remain appropriate and in accordance with relevant accounting standards.</td></tr>
<tr><td>Key observations</td><td>As the group's activities continue to evolve, in pursuit of its long and medium term strategy, we noted complex accounting transactions primarily emerging from its transitional activities, such as gas, power and renewables.

For complex accounting transactions identified during the period, we concluded that the accounting applied by management was compliant with IFRS.</td></tr>
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5.5 Valuation of commodity financial derivatives, where fraud risks may arise in revenue recognition - Notes 1, 29 and 30 to the financial statements	
Key audit matter description	bp's trading and shipping (T&S) function is responsible for globally trading and risk managing the group's owned as well as third party production. To discharge this responsibility, T&S regularly executes commodity contracts, physically settled or otherwise, which are accounted for as a derivative and fair valued under IFRS 9. These contracts, therefore, result in unrealised gains/losses that are recognised on account of fair value movements in the associated derivative assets and liabilities. Determining the fair value of derivative assets and liabilities can be complex and subjective, particularly where the valuation is dependent on significant inputs which are not observable and are classified as level 3 in the fair value hierarchy set out in IFRS 13. This degree of subjectivity also makes such fair value estimates liable to potential fraud by management incorporating bias in the inputs used in determining fair values. Given the significant judgements, sensitivity to management assumptions, and the absolute value associated with these positions, we have identified a significant risk in respect of certain financial instruments where the valuation is dependent on significant unobservable inputs. Fair value measurements associated with unrealised commodity contracts are also impacted by the macroeconomic sentiment and outlook. In 2023, commodity markets remained relatively volatile due to continuing uncertainty resulting from the planned energy transition, macro-economic factors such as inflation and interest rates, and disruptions in global supply due to geopolitical conflicts. In response to the volatility observed, we focused our audit efforts on the valuation of all commodity derivatives and designed procedures specifically to test for management bias. As at 31 December 2023, the group's total level 3 derivative financial assets were $9.2 billion (2022 $8.8 billion) and level 3 derivative financial liabilities were $7.1 billion (2022 $7.0 billion).
How the scope of our audit responded to the key audit matter	In response to the above, we analysed the population of these instruments to assess the level of unobservability of the inputs used in their valuation and then further disaggregated the population into different risk populations which in turn drove the nature, timing and extent of our audit procedures. To address the complexities associated with auditing the valuation of instruments dependent on significant unobservable inputs, we included valuation specialists with significant quantitative and modelling expertise to assist in performing our audit procedures. Our valuation audit included the following control and substantive procedures: • We tested the group's valuation controls including: – the model certification control, which is designed to review a model's theoretical soundness and the appropriateness of its valuation methodology; and – the independent price verification control, which is designed to review the appropriateness of valuation inputs that are not observable and are significant to the financial instrument's valuation. • We performed valuation testing procedures at interim and year-end balance sheet dates, including: – comparing management's input assumptions against the expected assumptions of other market participants and observable market data; – evaluating management's valuation methodologies against standard valuation practice and analysing whether a consistent framework is applied across the business period over period; and – engaging our valuation specialists to challenge models, develop fair value estimates and evaluate consistency in management's modelling and input assumptions throughout the year.
Key observations	Based on the evaluation of the results of the procedures noted above, we concluded that management's valuations relating to commodity derivatives were appropriate. We did not identify any indications of inappropriate misrepresentation of revenue recognition in the transactions, valuation estimates or accounting entries that we tested.

5.6 Management override of controls (potentially impacting all financial statement accounts)	
Key audit matter description	We conducted an assessment of the fraud risks arising from management override of controls by considering potential areas where the group's financial statements could be manipulated. In performing this assessment, we considered pressures or incentives to achieve certain IFRS or non-IFRS measures due to the remuneration arrangements of people in Financial Reporting Oversight Roles (FRORs), including management and senior executives, as well as other incentives which could exist in light of bp's share buyback commitments communicated to its shareholders. Our considerations included the potential for: • inappropriate accounting estimates and judgements • the posting of fictitious or fraudulent journal entries or • inappropriate accounting for significant transactions that are outside the normal course of business for the entity Management has implemented a number of new journal controls in 2021, 2022 and 2023 to address deficiencies identified during prior period audits. During the year we identified deficiencies in these new controls but mitigating controls to address the risk associated with the deficiencies were also identified. These included analytical reviews, controls over closing balances, period-end analytical review controls and certain automated business controls. This had a significant bearing again this year on the allocation of audit resources and has been discussed with the audit committee throughout the year. Accordingly, we identified this as a key audit matter.

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How the scope of our audit responded to the key audit matter	We tested the mitigating controls to respond to the risk of fraudulent journal entries. In addition, we: made inquiries of individuals involved in the financial reporting process about inappropriate or unusual activity relating to the processing of journal entries and other adjustments; identified and tested relevant entity-level controls, in particular those related to the bp Code of Conduct, whistleblowing (bp OpenTalk) and controls monitoring financial reporting processes and financial results; used our data analytics tools to select for testing journal entries and other adjustments made at the end of a reporting period or otherwise having characteristics associated with common fraud schemes; and tested journal entries and other adjustments recorded in the general ledger throughout the period, with a particular focus on adjustments that occur late in the financial close process. We assessed accounting estimates for bias and evaluated whether the circumstances producing the bias, if any, represent a risk of material misstatement due to fraud. A number of the most significant estimates are covered by the other Key Audit Matters set out above. This assessment included: evaluating whether the judgements and decisions made by management in making the accounting estimates included in the financial statements, even if they are individually reasonable, indicate a possible bias on the part of bp's management that may represent a risk of material misstatement due to fraud; and performing a retrospective analysis of management judgements and assumptions related to significant accounting estimates reflected in the financial statements of the prior year. We considered whether there were any significant transactions that are outside the normal course of business, or that otherwise appear to be unusual due to their nature, timing or size. The risks and responses to the revenue recognition risks within the trading and shipping function are set out on page 149.
Key observations	Our testing of the mitigating controls indicated that they were operating effectively. Our substantive testing of journal entries and other adjustments, selected through the use of our data analytics tools, did not identify any inappropriate items. We did not identify evidence of overall bias or any significant transactions that are outside the normal course of business for which the business rationale (or the lack thereof) of the transaction suggested that it may have been entered into to engage in fraudulent financial reporting or to conceal misappropriation of assets.

6. Our application of materiality

6.1 Materiality

We define materiality as the magnitude of misstatement in the financial statements that makes it probable that the economic decisions of a reasonably knowledgeable person would be changed or influenced. We use materiality both in planning the scope of our audit work and in evaluating the results of our work.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

	Group financial statements	Parent company financial statements
Materiality	In 2023 we set materiality for both the group and parent company at $1,000 million. In 2022 we used a materiality of $1,250 million for the group and parent company. Group and parent company planning materiality for 2022 was $1,000 million and our audit scoping and audit testing was conducted using this planning materiality.	
Basis for determining materiality	Consistent with the prior year we concluded that it is appropriate to use profit before tax as a materiality benchmark; however unlike last year where there were exceptional charges associated with the decision to exit bp's shareholding in Rosneft, no adjustment in respect of exceptional items was made in the current year. For both the current and prior years, we also used underlying replacement cost profit before interest and tax as a benchmark for determining materiality. Materiality was determined to be $1,000 million, which is 4.2% of profit before tax and 3.7% of underlying replacement cost profit before tax. In 2022, we determined materiality to be $1,250 million, which represented 3.1% of normalized profit before tax and 2.7% of underlying replacement cost profit before tax.	We determined materiality for our audit of the standalone parent using 0.8% (2022 1.1%) of net assets.
Rationale for the benchmark applied	We conducted an assessment of which line items are the most important to investors and analysts by reading analyst reports and bp's communications to shareholders and lenders, as well as the communications of peer companies. Profit before tax is the benchmark ordinarily considered by us when auditing listed entities. It provides comparability against companies across all sectors but has limitations when auditing companies whose earnings are strongly correlated to commodity prices, which can be volatile from one period to the next, and therefore may not be representative of the volume of transactions and the overall size of the business in the year. This resulted in us selecting profit before tax and underlying replacement cost profit before interest and tax as the most appropriate benchmarks. We further note that the non-IFRS measure underlying replacement cost profit before interest and tax is one of the key metrics communicated by management in bp's results announcements and therefore is considered to be an appropriate benchmark.	The materiality determined for the standalone parent company is based on net assets as the company is non-trading and operates primarily as a holding company; we believe the net asset position is the most appropriate benchmark to use.

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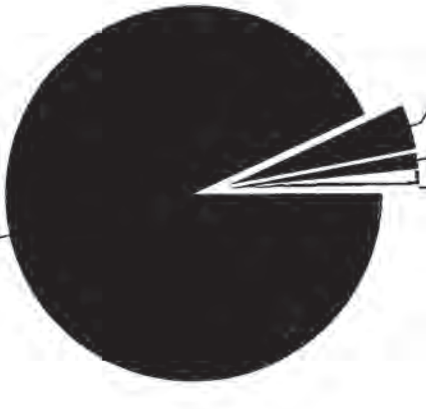
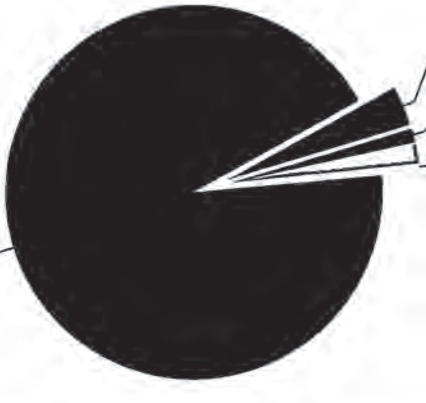




6.2 Performance materiality

We set performance materiality at a level lower than materiality to reduce the probability that, in aggregate, uncorrected and undetected misstatements exceed the materiality for the financial statements as a whole.

	Group financial statements	Parent company financial statements
Performance materiality	Group and parent company performance materiality was set at 65% of materiality for the 2023 audit (2022 65% of materiality).	
Basis and rationale for determining performance materiality	Consistent with the prior year, performance materiality of 65% reflects the overall quality of the control environment, the magnitude of misstatements identified in the current and prior years, as well as the fact that management is generally willing to correct any such misstatements.	

6.3 Error reporting threshold

We agreed with the audit committee that we would report to the committee all audit differences in excess of $50 million (2022 $50 million), as well as differences below that threshold that, in our view, warranted reporting on qualitative grounds. We also report to the audit committee on disclosure matters that we identified when assessing the overall presentation of the financial statements.

7. An overview of the scope of our audit

7.1 Identification and scoping of components

As a result of the highly disaggregated nature of the group, with operations in over 60 countries through approximately 930 cons units, a significant portion of our audit planning effort was ensuring that the scope of our work is appropriate in addressing the identified risks of material misstatement.

The factors that we considered when assessing the scope of the bp audit, and the level of work to be performed at the cons units that are in scope for group reporting purposes, included the following:

- The financial significance of an operating unit (which will typically include multiple cons units) to bp's revenue and profit before tax, or PP&E, including consideration of the financial significance of specific account balances or transactions.
- The significance of specific risks relating to an operating unit, history of unusual or complex transactions, identification of significant audit issues or the potential for, or a history of, material misstatements.

- The effectiveness of the control environment and monitoring activities, including entity-level controls.
- The findings, observations and audit differences that we noted as a result of our 2022 audit engagement.
- Our audit approach was generally to place reliance on management's controls over financial reporting.

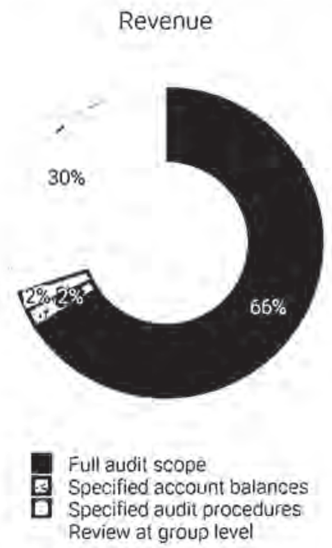
To ensure we were able to obtain sufficient, appropriate audit evidence for the purposes of our audit of the financial statements, we performed full scope audit procedures for 138 reporting cons units (2022 152) which were selected based on their size or risk characteristics. There are certain cons units which have fallen out of scope due to disposals, asset impairments and non-recurring one off transactions which were in scope in the prior year. Our full-scope audits are in the UK, US, Australia, Azerbaijan and Germany.

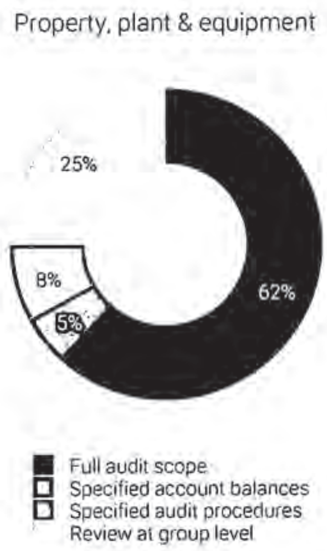
In addition, component teams performed audit procedures on specified account balances in 24 cons units (2022 19) also covering Trinidad and Tobago, Mauritania & Senegal, Indonesia, Egypt, India and UAE. The group engagement team performed audit procedures on specified account balances to component materiality, with certain additional specific procedures performed by component teams, covering an additional 27 cons units (2022 33).

The remaining cons units are not significant individually and include many small, low risk components and balances. On average, they each represent 0.04% of group revenue (2022 0.03%), 0.03% of property, plant and equipment (2022 0.03%) and 0.04% of profit before tax (2022 0.04%).

In our assessment of the residual balances not covered by the above procedures, we have considered the risk that there could be a material misstatement within the large number of geographically dispersed businesses, in particular within the C&P segment. This assessment included use of our analytic tools to interrogate data, preparation of trend analysis and comparison of business performance to market benchmark prices. We also tested management's group-wide controls across a range of locations and segments. We concluded that through this additional risk assessment, we have reduced the audit risk of such a misstatement arising to a sufficiently low level.

Our audit coverage of 'Property, plant and equipment', 'Sales and other operating revenue' and 'Profit before tax' is materially the same as in the prior year.





7.2 Our consideration of the control environment

Our audit approach was generally to place reliance on management's relevant controls over all business cycles affecting in scope financial statement line items. We tested a sample of these controls through a combination of tests of inquiry, observation, inspection and re-performance.

In limited situations where we were not able to take a controls reliance approach due to controls being deficient and there not being sufficient mitigating or alternative controls we could rely on instead, we adopted a non-controls reliance approach. All control deficiencies which we considered to be significant were communicated to the audit committee. All other deficiencies were communicated to management. For all deficiencies identified we considered the impact and updated our audit plan accordingly.

The group's financial systems environment is complex, with 140 separate IT systems scoped (including 23 systems acquired by bp through recent acquisitions) as being relevant to the audit for the following key locations (UK, US, Germany, Azerbaijan and Australia) as well as other minor locations. These systems are all directly or indirectly relevant to the entity's financial reporting process.

We planned to rely on the General IT Controls ('GITCs') associated with these systems, and having tested controls over access security, change management, data centre operations and network operations, were able to do so.

7.3 Working with other auditors

The group audit team are responsible for the scope and direction of the audit process and provide direct oversight, review, and coordination of our component audit teams. We interacted regularly with the component Deloitte teams during each stage of the audit and reviewed key working papers. We maintained continuous and open dialogue with our component teams in addition to holding formal meetings quarterly to ensure that we were fully aware of their progress and results of their procedures.

Consistent with prior year, the senior statutory auditor and other group audit partners and staff conducted visits to meet with the component teams responsible for all of the full scope locations during the year as well as Egypt, Indonesia and Trinidad and Tobago. These visits included attending planning

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meetings, discussing the audit approach including the risk assessments and any issues arising from the component team's work, meetings with local management, and reviewing key audit working papers on higher and significant-risk areas to drive a consistent and high-quality audit. In addition, a global audit planning meeting was held in London for three days in July led by the senior statutory auditor and involving the group audit team, partners and staff from all full scope component teams, audit teams responsible for testing at key Global Business Services (GBS) locations and senior management from bp.

Following the group's decision to exit Rosneft in February 2022, Rosneft is no longer classified as a reportable segment and the investment was fully impaired in that year. Accordingly, Rosneft was no longer a significant component in scope of the group audit and we therefore did not require reporting from Rosneft's auditor. The group audit team audited the Rosneft investment valuation and other Rosneft related judgements including the decision not to recognise dividends.

8. Other information

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The directors are responsible for the other information contained within the annual report.

We have nothing to report in this regard.

Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the course of the audit, or otherwise appears to be materially misstated.

If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

9. Responsibilities of directors

As explained more fully in the directors' responsibilities statement, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the group's and the parent company's ability to continue as a going concern, disclosing as applicable matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the group or the parent company or to cease operations, or have no realistic alternative but to do so.

10. Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

11. Extent to which the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below.

11.1 Identifying and assessing potential risks related to irregularities

In identifying and assessing risks of material misstatement in respect of irregularities, including fraud and non-compliance with laws and regulations, we considered the following:

- our meetings throughout the year with the Group Head of Ethics and Compliance and reviews of bp's internal ethics and compliance reporting summaries, including those concerning investigations.
- enquiries of management, internal audit, and the audit committee, including obtaining and reviewing supporting documentation, concerning the group's policies and procedures relating to:
  - identifying, evaluating and complying with laws and regulations and whether they were aware of any instances of non-compliance
  - detecting and responding to the risks of fraud and whether they have knowledge of any actual, suspected or alleged fraud and
  - the internal controls established to mitigate risks related to fraud or non-compliance with laws and regulations.
- review of the terms of reference of the Fraud Governance Board set up by management to support the creation and delivery of the Group Fraud Risk Strategy, periodically monitor the threat outlook and review the risk appetite.
- review of the Fraud Governance Board's meeting minutes and its fraud risk assessment.
- enquiries of those charged with governance with regards to the facts and circumstances related to the resignation of the former Chief Executive Officer and the related investigation undertaken by the Board, and the impact of this on the Board's assessment of risk of non-compliance with laws and regulations.
- the group's remuneration policies, key drivers for remuneration and bonus levels and

- discussions among the engagement team regarding how and where fraud might occur in the financial statements and any potential indicators of fraud. The engagement team includes audit partners and staff who have extensive experience of working with companies in the same sectors as bp operates, and this experience was relevant to the discussion about where fraud risks may arise. The discussions also involved fraud specialists who advised the engagement team of fraud schemes that had arisen in similar sectors and industries, and they participated in the initial fraud risk assessment discussions.

In common with all audits under ISAs (UK), we are also required to perform specific procedures to respond to the risk of management override.

We also obtained an understanding of the legal and regulatory frameworks that the group operates in, focusing on provisions of those laws and regulations that had a direct effect on the determination of material amounts and disclosures in the financial statements. The key laws and regulations we considered in this context included the UK Companies Act, UK Corporate Governance Code, United Kingdom adopted international accounting standards and IFRSs as issued by the IASB and as adopted by the EU, FRS 101, US Securities Exchange Act 1934 and relevant SEC regulations, as well as laws and regulations prevailing in each country in which we identified a full-scope component.

In addition, we considered provisions of other laws and regulations that do not have a direct effect on the financial statements but compliance with which may be fundamental to the group's ability to operate or to avoid a material penalty. These included the group's operating licences and environmental regulations.

11.2 Audit response to risks identified

As a result of performing the above, we did not identify any key audit matters related to the potential risk of non-compliance with laws and regulations. We did identify two key audit matters relating to fraud risks, as described above, being the valuation of commodity financial derivatives, and management override of controls. The key audit matters section of our report explains the matters in more detail and also describes the specific procedures we performed in response to those key audit matters.

In addition to the above, procedures to respond to risks identified included the following:

- reviewing the financial statement disclosures and testing to supporting documentation to assess compliance with provisions of relevant laws and regulations described as having a direct effect on the financial statements
- enquiring of management, the audit committee and in-house legal counsel concerning actual and potential litigation and claims
- obtaining confirmations from external legal counsel concerning open litigation and claims
- performing analytical procedures to identify any unusual or unexpected relationships that may indicate risks of material misstatement due to fraud and
- reading minutes of meetings of those charged with governance, reviewing internal audit reports and reviewing correspondence with HMRC and the IRS.

We also communicated relevant identified laws and regulations and potential fraud risks to all engagement team members including internal specialists and significant component audit teams and remained alert to any indications of fraud or non-compliance with laws and regulations throughout the audit.

Report on other legal and regulatory requirements

12. Opinions on other matters prescribed by the Companies Act 2006

In our opinion the part of the directors' remuneration report to be audited has been properly prepared in accordance with the Companies Act 2006.

In our opinion, based on the work undertaken in the course of the audit:

- The information given in the strategic report and the directors' report for the financial year for which the financial statements are prepared is consistent with the financial statements.
- The strategic report and the directors' report have been prepared in accordance with applicable legal requirements.

In the light of the knowledge and understanding of the group and the parent company and their environment obtained in the course of the audit, we have not identified any material misstatements in the strategic report or the directors' report.

13. Corporate Governance Statement

The Listing Rules require us to review the directors' statement in relation to going concern, longer-term viability and that part of the Corporate Governance Statement relating to the group's compliance with the provisions of the UK Corporate Governance Code specified for our review.

Based on the work undertaken as part of our audit, we have concluded that each of the following elements of the Corporate Governance Statement is materially consistent with the financial statements and our knowledge obtained during the audit:

- the directors' statement with regards to the appropriateness of adopting the going concern basis of accounting and any material uncertainties identified set out on page 135
- the directors' explanation as to its assessment of the group's prospects, the period this assessment covers and why the period is appropriate set out on page 135
- the directors' statement on fair, balanced and understandable set out on page 135
- the board's confirmation that it has carried out a robust assessment of the emerging and principal risks set out on page 134
- the section of the annual report that describes the review of effectiveness of risk management and internal control systems set out on page 134 and
- the section describing the work of the audit committee set out on pages 98-102

14. Matters on which we are required to report by exception

14.1 Adequacy of explanations received and accounting records

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not received all the information and explanations we require for our audit or
- adequate accounting records have not been kept by the parent company, or returns adequate for our audit have not been received from branches not visited by us or
- the parent company financial statements are not in agreement with the accounting records and returns.

We have nothing to report in respect of these matters.

14.2 Directors' remuneration

Under the Companies Act 2006 we are also required to report if in our opinion certain disclosures of directors' remuneration have not been made or the part of the directors' remuneration report to be audited is not in agreement with the accounting records and returns.

We have nothing to report in respect of these matters.

15. Other matters which we are required to address

15.1 Auditor tenure

The board appointed Deloitte as the company's auditor with effect from 29 March 2018 to fill the vacancy arising from the resignation of the previous auditor. On 27 April 2023, shareholders resolved at the annual general meeting to reappoint Deloitte as auditor from the conclusion of the meeting until the conclusion of the annual general meeting to be held in 2024 and authorized the directors to set the audit fees.

The first accounting period we audited was the 12 month period ended 31 December 2018. The period of total uninterrupted engagement including previous renewals and reappointments of the firm is 6 years, covering the years ending 31 December 2018 to 31 December 2023.

15.2 Consistency of the audit report with the additional report to the audit committee

Our audit opinion is consistent with the additional report to the audit committee we are required to provide in accordance with ISAs (UK).

16. Use of our report

This report is made solely to the company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.

In due course, as required by the Financial Conduct Authority (FCA) Disclosure Guidance and Transparency Rule (DTR) 4.1.15R – DTR 4.1.18R, these financial statements will form part of the Electronic Format Annual Financial Report filed on the National Storage Mechanism of the FCA in accordance with DTR 4.1.15R – DTR 4.1.18R. This auditor's report provides no assurance over whether the Electronic Format Annual Financial Report has been prepared in compliance with DTR 4.1.15R – DTR 4.1.18R.

Judith Tacon FCA (Senior statutory auditor)
For and on behalf of Deloitte LLP
Statutory Auditor
London, United Kingdom
8 March 2024

Report of Independent Registered Public Accounting Firm

To the shareholders and board of directors of BP p.l.c.

Opinion on the financial statements

We have audited the accompanying consolidated group balance sheets of BP p.l.c. and subsidiaries (together 'bp' or 'the group') as at 31 December 2023 and 2022, the related consolidated group income statements, group statements of comprehensive income, group statements of changes in equity and group cash flow statements, for each of the three years in the period ended 31 December 2023, and the related notes (collectively referred to as the 'financial statements'). In our opinion, the financial statements present fairly, in all material respects, the financial position of the group as at 31 December 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended 31 December 2023, in accordance with United Kingdom adopted international accounting standards and International Financial Reporting Standards (IFRSs) as issued by the International Accounting Standards Board (IASB) and as adopted by the European Union (EU).

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), bp's internal control over financial reporting as of 31 December 2023, based on criteria established in the UK Financial Reporting Council's Guidance on Risk Management, Internal Control and Related Financial and Business reporting relating to internal control over financial reporting and our report dated 8 March 2024 expressed an unqualified opinion on bp's internal control over financial reporting.

Basis for opinion

These financial statements are the responsibility of bp's management. Our responsibility is to express an opinion on bp's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to bp in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

1. Impairment of upstream oil and gas property, plant and equipment (PP&E) assets – Notes 1, 4 and 12 to the financial statements

Critical Audit Matter Description

The group balance sheet as at 31 December 2023 includes PP&E, of which $62 billion is oil and gas properties.

Management's best estimate of oil and gas price assumptions for value-in-use impairment tests were revised in 2023 as set out in Note 1 on page 177. Brent oil price and Henry Hub assumption revisions during 2023 were not significant. Management has also revised bp's 'best estimate' discount rate assumptions for value-in-use impairment tests in 2023, as set out in Note 1 on page 177. bp's post-tax nominal weighted average cost of capital, being the starting point for setting discount rates used for impairment testing for oil and gas assets, has increased to 8%, reflecting the impact of observable increases in risk free rates on bp's weighted average cost of capital.

Given the significance of the discount rate assumption revisions during 2023, alongside certain CGU specific new indicators, management has tested all oil and gas CGUs for impairment and/or impairment reversal during the year. Management recorded $3.6 billion of pre-tax oil and gas CGU impairment charges, principally due to the discount rate revisions detailed above, price revisions, increase in certain capital expenditure forecasts, operating expenditure forecasts and certain reserves write downs. Further information has been provided in Note 1 on page 177 and Note 4 on page 191.

We identified three key management estimates in management's determination of the level of impairment charge and/or impairment reversal. These are:

Oil and gas prices - bp's oil and gas price assumptions have a significant impact on many CGU impairment assessments performed across the OP&O and G&LCE segments and are inherently uncertain. The estimation of future prices is subject to increased uncertainty given climate change, the global energy transition, macro-economic factors and disruption in global supply due to ongoing geo-political conflicts. There is a risk that management do not forecast reasonable 'best estimate' oil and gas price forecasts when assessing CGUs for impairment charge and/or impairment reversal, leading to material misstatements. These price assumptions are highly judgmental and are pervasive inputs to bp's oil and gas CGU valuations. There is also a risk that management's oil and gas price related disclosures are not reasonable.

Discount rates - Given the long timeframes involved, certain CGU impairment assessments are sensitive to the discount rate applied. Discount rates should reflect the return required by the market and the risks inherent in the cash flows being discounted. There is a risk that management does not assume reasonable discount rates, adjusted as applicable for country risks and relevant tax rates, leading to material misstatements. Determining a reasonable discount rate is highly judgmental and, consistent with price assumptions above, the discount rate assumption is also a pervasive input across bp's oil and gas CGU valuations, before adjustments for asset specific risks and tax rates.

Reserves and resources estimates - A key input to certain CGU impairment assessments is the oil and gas production forecast, which is based on underlying reserves estimates and field specific development assumptions. Certain CGU production forecasts include specific risk adjusted resource volumes, in addition to proven and/or probable reserves estimates, that are inherently less certain than reserves; and assumptions related to these volumes can be particularly judgemental. There is a risk that material misstatements could arise from unreasonable production forecasts for individually material CGUs and/or from the aggregation of systematic flaws in bp's reserves and resources estimation policies across the OP&O and G&LCE segments.

We identified certain individual CGUs which we determined would be most at risk of material impairment charges as a result of a reasonably possible change in the oil and gas price assumptions. This population includes previously impaired assets which are also at risk of material impairment reversal resulting from potential oil and gas price assumption changes. We identified that a subset of these CGUs was also individually materially sensitive to the discount rate assumption.

We also identified CGUs which were less sensitive as they would be potentially at risk, in aggregate, to a material impairment by a reasonably possible change in some or all of the key assumptions. No impairment reversals are available for these CGUs. Further information regarding these sensitivities is given in Note 1 on page 178.

Impairment charge and/or impairment reversal assessments of upstream oil and gas PP&E assets remain a critical audit matter because recoverable values are reliant on forecasts that are inherently judgemental and complex for management to estimate, and the magnitude of the potential misstatement risk is material to the group.

How the Critical Audit Matter was addressed in the Audit

We tested relevant internal controls over the estimation of oil and gas prices, discount rates, and reserve and resources estimates, as well as key internal controls over the performance of the impairment charge and/or impairment reversal assessments where we identified audit risks. In addition, we conducted the following substantive procedures.

Oil and gas prices

- We independently developed a reasonable range of forecasts based on external data obtained, against which we compared management's oil and gas price assumptions in order to challenge whether they are reasonable.
- In developing this range, we obtained a variety of reputable and reliable third party forecasts, peer information and other relevant market data.
- In challenging management's price assumptions, we considered the extent to which they and each of the forecast pricing scenarios obtained from third parties reflect the impact of lower oil and gas demand due to climate change and the energy transition.
- The 2015 Conference of the Parties (CoP) 21 Paris Agreement goals of 'holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels' was reaffirmed at CoP 28 in Dubai during December 2023. We specifically analysed third party forecasts stated, or interpreted by us, as being consistent with scenarios achieving the Paris 'well below 2°C goal' and/or '1.5°C ambition' and evaluated whether they presented contradictory audit evidence.
- We assessed management's disclosures in Notes 1, including the sensitivity of forecast revenue cash inflows to lower oil and gas prices and how climate change and the energy transition, potential future emissions costs and/or reduced demand scenarios may impact bp to a greater extent than currently anticipated in bp's value-in-use estimates for oil and gas CGUs.

Discount rates

- We independently evaluated bp's discount rates used in impairment tests with input from our valuation specialists, against relevant third party market and peer data.
- When performing procedures over specific assets, we assessed whether specific country risks and tax adjustments were reasonably reflected in bp's discount rates.
- We challenged and evaluated management's disclosures in Notes 1, including in relation to the sensitivity of discount rate assumptions.

Reserves and resources estimates

With the assistance of our oil and gas reserves specialists we:

- assessed bp's reserves and resources estimation methods and policies for reasonableness
- assessed how these policies had been applied to a sample of bp's reserves and resources estimates
- read and evaluated a sample of reports provided by management's external reserves experts and assessed the scope of work and findings of these third parties
- assessed the competence, capabilities and objectivity of bp's internal and external reserve experts, through understanding their relevant professional qualifications and experience
- assessed whether management's production forecasts are consistent overall with bp's strategy, including the group's expectation to reduce its hydrocarbon production (by around 25% by 2030 relative to 2019 - see page 171)
- compared the production forecasts used in the impairment tests with management's approved reserves and resources estimates and
- performed a retrospective assessment in order to assess management's ability to accurately estimate reserves and resources and to check for indications of estimation bias over time.

2. Decommissioning provisions – Notes 1 and 23

Critical Audit Matter Description

A decommissioning provision of $12.4 billion is recorded in the financial statements as at 31 December 2023. The estimation of decommissioning provisions is a highly judgemental area as it involves a number of key estimates related to the cost and timing of decommissioning, in particular inflation and discount rate assumptions. Given management expects upstream hydrocarbon production to be around 25% lower by 2030 relative to 2019 as stated on page 171, consistency of that expectation with the timing of decommissioning expenditure and underlying cost assumptions remains a key consideration.

Consistent with prior years, management estimates that the average rate of forecast inflation applicable to the substantial majority of bp's decommissioning cost estimates is 1.5%, which is 0.5% lower than its estimated long term general inflation rate of 2%.

The estimated undiscounted cost of the obligations and the timing of future payment are set out in Note 1 on page 184. Economic factors, future activities and the legislative environments that bp operates in are used to inform cost estimates, whereas the timing of decommissioning activities is dependent on cessation of production (CoP) dates, which are sensitive to changes in bp's price forecasts as price estimates determine economic cut off of oil and gas reserve estimates.

bp increased its discount rate used in calculating its decommissioning provisions from 3.5% as at 31 December 2022 to 4.0% as at 31 December 2023. The increase was primarily driven by the increased US treasury bond rates.

Provisions for decommissioning refining assets, not generally recognised on the basis that the potential obligations cannot be measured given their indeterminate settlement dates, might need to be recognised if reductions in demand due to climate change curtail their operational lives. As disclosed in Note 1 on page 184 management concluded that, although obligations may arise if refineries cease manufacturing operations, they would only be recognised at the point when sufficient information became available to determine potential settlement dates. Accordingly, other than where a decision has been made to cease refining operations, no triggers for assessing the need to record a decommissioning provision have been identified.

How the Critical Audit Matter was addressed in the Audit

Long term Inflation rate

- We tested the control related to the determination of the decommissioning specific inflation rate assumption.
- We tested how management derived the decommissioning specific inflation rate assumption of 1.5%, and the evidence on which it is based, by gaining an understanding of the process used by management, testing management's calculations of the assumption, and evaluating the evidence relevant to management's assumption, both supporting and contradictory.
- As the 1.5% decommissioning specific inflation rate assumption is determined by making an adjustment to management's 2.0% general long term inflation rate assumption, we evaluated the general long term inflation rate assumption used of 2.0%, comparing it against latest external market data.
- We made inquiries and evaluated the competence, capabilities and objectivity, of management's decommissioning experts who derived the decommissioning specific inflation rate.
- We inspected analyst forecasts and reports in respect of the future decommissioning market and related costs for evidence of supporting and contradictory evidence, with particular focus on the future rig market.
- We particularly considered the expectation that demand for oil and gas products and related activities will decrease, primarily in response to climate change and energy transition effects pivoting future energy industry investment and development activity towards renewable sources. We challenged and evaluated management's assessment of the impact this will have on the decommissioning market and related inflation assumption.
- We analysed historical trends of rig market rates against oil prices and historical inflation to challenge management's assumption that the decommissioning inflation assumption does not inflate at the same rate as general inflation.

Cost and timing estimates

- We tested the controls over the year end decommissioning cost and timing assumptions used within management's decommissioning provision estimate.
- We assessed the completeness and accuracy of the assets subject to decommissioning, including understanding the process to establish whether a legal or constructive obligation existed.
- We evaluated changes in key cost assumptions including rig rates, vessel rates, well plug and abandonment duration and non-productive time assumptions.
- We challenged whether the impact of inflation experienced in 2023 was appropriately considered and reflected where relevant within bp's cost assumptions.
- We assessed the reasonableness of key cost assumptions with reference to internal and appropriate third party data.
- We assessed changes in assumptions for the estimated date of decommissioning and evaluated whether CoP dates used for decommissioning estimation are aligned with CoP assumptions in other areas, including PP&E impairment testing and oil and gas reserve estimation.
- We assessed the accuracy of bp's disclosure of the estimated undiscounted cost of its obligations and the timing of future decommissioning payments.

Discount rates

- We tested the control related to the determination of the discount rate assumption.
- We assessed the reasonableness of management's methodology for determining the discount rate and recalculated the discount rate with reference to independent third party data, most notably US treasury bond yields.

Potential decommissioning of refinery assets

- We challenged and evaluated management's analysis which supported the judgement that no decommissioning provisions should be recognised in respect of refineries where there is ongoing activity and management has no current intention to cease these activities.
- We have reviewed analysis undertaken by management, as well as third party studies, of forecast demand for refined products in regions served by bp's refineries. Furthermore, we read external profitability benchmarking which supported a conclusion that the group's remaining refineries would likely remain operational for longer than many of their regional competitors, in the event of refining capacity reductions.
- We also met with refinery management to understand the potential plans under consideration for refineries in the future and obtained evidence that management is developing plans for the existing refinery sites remaining in the portfolio which would be compatible with net zero emissions, for instance through the production of alternative low carbon and sustainable fuels.

3. Accounting for complex transactions executed to deliver against the wider group strategy - Notes 1, 20, 22, 29 and 30 to the financial statements

Critical Audit Matter Description

To support the overall group strategy, which includes achieving bp's 'net zero' target, bp is increasingly entering into long term arrangements that include gas and renewable power offtake/supply contracts in existing and new markets whilst providing solutions to bp's customers through offering lower carbon hydrocarbons. Given the nature of these transactions, we direct significant audit effort towards challenging management's adopted accounting treatment and/or valuation estimates.

In previous years, such activity was primarily carried out within the trading and shipping (T&S) function. However, such activity can also originate outside of T&S, across segments, functions and/or geographies but in close collaboration with T&S.

These transactions may be complex and have sustainability, legal, tax or financial reporting outcomes which are new for the group and may be executed in reference to, or in conjunction with, existing arrangements. Determining the appropriate accounting treatment for these transactions can require a high degree of management judgement.

Determining the appropriate accounting treatment for these complex transactions:

Based on our risk assessment and understanding of the underlying business rationale of such transactions, we generally consider that complexity arises where the arrangements exhibit one or more of the following indicators:

- Offtake/sale-purchase agreements where the group is the only key customer/supplier;
- The counterparty or the arrangement depends on the group to provide a significant level of financing;
- The group controls exclusive rights, licenses, technology, know-how etc. without which the counterparty cannot conduct its operations or the arrangement cannot be fulfilled;
- The arrangement exposes the group to returns/losses which are disproportionate to those which its economic interest would suggest;
- Contractual arrangements entered into in contemplation of each other; or
- The transaction or arrangement directly impacts key performance indicators, in particular, finance debt.

The presence of any one or a combination of these indicators does not make a transaction or arrangement inherently complex but are factors we consider in our assessment of the risk arising from the transaction.

Accounting for such transactions can be complex and can involve significant judgement, as a feature of these transactions is that they often include multiple elements that will have a material impact on the presentation and disclosure in the financial statements, including in particular the classification of liabilities as finance debt.

How the Critical Audit Matter was addressed in the Audit

For complex accounting transactions identified during the year, we:

- Tested controls related to the accounting for complex transactions.
- Developed an understanding of the commercial rationale of the transactions through discussions with management and reading transaction documents and executed agreements.
- For transactions exhibiting certain of the above indicators, performed a detailed accounting analysis leveraging the expertise of technical accounting specialists with experience in commodities markets.

4. Valuation of commodity financial derivatives, where fraud risks may arise in revenue recognition - Notes 1, 29 and 30 to the financial statements

Critical Audit Matter Description

bp's trading and shipping (T&S) function is responsible for globally trading and risk managing the group's owned as well as third party production. To discharge this responsibility, T&S regularly executes commodity contracts, physically settled or otherwise, which are accounted for as a derivative and fair valued under IFRS 9. These contracts, therefore, result in unrealised gains/losses that are recognised on account of fair value movements in the associated derivative assets and liabilities.

Determining the fair value of derivative assets and liabilities can be complex and subjective, particularly where the valuation is dependent on significant inputs which are not observable and are classified as level 3 in the fair value hierarchy set out in IFRS 13. This degree of subjectivity also makes such fair value estimates prone to potential fraud by management incorporating bias in the inputs used in determining fair values. Given the significant judgements, sensitivity to management assumptions, and the absolute value associated with these positions, we have identified a risk in respect of certain financial instruments where the valuation is dependent on significant unobservable inputs.

Fair value measurements associated with unrealised commodity contracts are also impacted by the macroeconomic sentiment and outlook. In 2023, commodity markets remained relatively volatile due to continuing uncertainty resulting from the planned energy transition, macro-economic factors such as inflation and interest rates, and disruptions in global supply due to geopolitical conflicts. In response to the volatility observed, we focused our audit efforts on the valuation of all commodity derivatives and designed procedures specifically to test for management bias.

As at 31 December 2023, the group's total level 3 derivative financial assets were $9.2 billion and level 3 derivative financial liabilities were $7.1 billion.

How the Critical Audit Matter was addressed in the Audit

In response to the above, we analysed the population of these instruments to assess the level of unobservability of the inputs used in their valuation and then further disaggregated the population into different risk populations which in turn drove the nature, timing and extent of our audit procedures.

To address the complexities associated with auditing the valuation of instruments dependent on significant unobservable inputs, we included valuation specialists with significant quantitative and modelling expertise to assist in performing our audit procedures. Our valuation audit included the following control and substantive procedures:

- We tested the group's valuation controls including:
  - the model certification control, which is designed to review a model's theoretical soundness and the appropriateness of its valuation methodology; and
  - the independent price verification control, which is designed to review the appropriateness of valuation inputs that are not observable and are significant to the financial instrument's valuation.
- We performed valuation testing procedures at interim and year-end balance sheet dates, including:
  - comparing management's input assumptions against the expected assumptions of other market participants and observable market data;
  - evaluating management's valuation methodologies against standard valuation practice and analysing whether a consistent framework is applied across the business period over period; and
  - engaging our valuation specialists to challenge models, develop fair value estimates and evaluate consistency in management's modelling and input assumptions throughout the year.

5. Impairment of E&A assets, investments in joint ventures and refinery PP&E as a consequence, among other things, of climate change and the energy transition – Notes 1, 4, 15 and 16

Critical Audit Matter Description

Intangible Assets

The recoverability of certain of the group's $4.3 billion total exploration and appraisal (E&A) assets capitalised as at 31 December 2023 is potentially exposed to climate change and the global energy transition risk factors (see Note 15). This is because a greater number of E&A projects may not proceed as a consequence of the energy transition leading to lower forecast future oil and gas prices, and bp's intention to reduce its hydrocarbon production (by around 25% by 2030 relative to 2019 – see page 171). The determination of whether and when E&A costs should be written off, impaired, or retained on the balance sheet as E&A assets, remains complex and continues to require significant management judgement.

PP&E and Investment in joint ventures

The carrying value of bp's refining assets within PP&E may no longer be recoverable, due to changes in supply and demand which arise as a consequence of climate change and the energy transition. Management identified impairment indicators in respect of the Gelsenkirchen refinery during the year and as a result, an impairment test was performed to assess the recoverability of the refinery carrying value. As disclosed in Note 4 to the accounts on page 192, management has recorded an impairment charge of $1.3 billion in respect of the Gelsenkirchen refinery in Germany, primarily driven by changes in economic assumptions.

There is also a risk that the carrying value of the group's investments in low carbon energy assets may no longer be recoverable due to an increase in the low carbon energy discount rate (the renewable power assets discount rate) as well as increased project development costs, which have been impacted by higher inflation and activity levels within the sector (as a result of the energy transition). These factors are adversely impacting the value of low carbon energy projects, impacting investment decisions. As a result, impairment tests(which include judgements in relation to the fair value of land and sea bed leases, capital and operating cost assumptions and forecast yield and power price assumptions) were performed to assess the recoverability of the group's low carbon energy assets, resulting in an impairment recognised by equity accounted entities of $1.3 billion, as disclosed in Note 16 to the accounts on page 208.

How the Critical Audit Matter Was Addressed in the Audit

A climate change steering committee comprising a group of senior partners and specialists with specific climate change and technical audit and accounting expertise within Deloitte was utilised to provide an independent challenge to our key decisions and conclusions with respect to this area.

Intangible Assets

In respect of the recoverability of E&A assets capitalised as at 31 December 2023:

- We tested the relevant controls within the group's E&A write-off and impairment assessment processes.
- We challenged and evaluated management's key E&A judgements with regards to the impairment criteria of IFRS 6. Where impairment indicators were identified we corroborated key judgements with internal and external evidence for assets that remained on the balance sheet. This included analysing evidence of future E&A plans, budgets and capital allocation decisions, assessing management's key accounting judgement papers, reading meeting minutes and assessing licence documentation and evidence of active dialogue with partners and regulators including negotiations to renew licences or modify key terms.

PP&E and Investment in joint ventures

We considered the impact of potential changes in supply and demand on the group's refining portfolio and assessed internal and external market studies of future supply and demand. In relation to the Gelsenkirchen refinery impairment test, we assessed the valuation methodology, tested the integrity and mechanical accuracy of the impairment model and assessed the appropriateness of key assumptions and inputs, notably forecast refining margins and energy input costs, challenging and evaluating management's assumptions by reference to third party data where available. We also evaluated management's ability to forecast future cash flows and margins by comparing actual results to historical forecasts and tested management's internal controls over the impairment test and related inputs.

In respect of the impairment tests performed on certain offshore wind asset low carbon energy investments, we tested the result by:

- Testing the relevant controls over these low carbon energy impairment tests including controls over key assumptions and the discount rate
- Assessing the low carbon energy discount rate with input from our valuation specialists
- Challenging and evaluating the key assumptions within the impairment tests. This included the fair value of land and sea bed leases, capital and operating cost assumptions and forecast yield and power price assumptions impacting the fair value of the development project, and
- Testing the mechanical accuracy of the impairment models.

/s/ Deloitte LLP

London
United Kingdom
8 March 2024

We have served as bp's auditor since 2018.

Report of Independent Registered Public Accounting Firm

To the shareholders and board of directors of BP p.l.c.

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of BP p.l.c. and its subsidiaries (the group) as of 31 December 2023, based on the criteria established in the UK Financial Reporting Council's Guidance on Risk Management, Internal Control and Related Financial and Business Reporting relating to internal control over financial reporting (UK FRC Guidance). In our opinion, the group maintained, in all material respects, effective internal control over financial reporting as of 31 December 2023, based on the criteria established in the UK FRC Guidance.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as at and for the year ended 31 December 2023, of the group and our report dated 8 March 2024 expressed an unqualified opinion on those financial statements.

As described in management's report on internal control over financial reporting, management excluded from its assessment the internal control over financial reporting at 'TravelCenters of America Inc.' (TCA) which was acquired on 15 May 2023. TCA's financial statements constitute 2.1% and 1.5% of net and total assets, respectively, 2.8% of 'Sales and other operating revenues', and 4% of 'profit (loss) for the year' of the consolidated financial statement amounts as of and for the year ended 31 December 2023. Accordingly, our audit did not include the internal control over financial reporting at TCA.

Basis for opinion

The Group's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's report on internal control over financial reporting. Our responsibility is to express an opinion on the group's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the group in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and limitations of internal control over financial reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte LLP
London, United Kingdom
8 March 2024

Group income statement

For the year ended 31 December				$ million
	Note	2023	2022	2021
Sales and other operating revenues	6	**210,130**	241,392	157,739
Earnings from joint ventures – after interest and tax	16	**67**	1,128	543
Earnings from associates – after interest and tax	17	**831**	1,402	3,456
Interest and other income	7	**1,635**	1,103	581
Gains on sale of businesses and fixed assets	4	**369**	3,866	1,876
Total revenues and other income		**213,032**	248,891	164,195
Purchases	19	**119,307**	141,043	92,923
Production and manufacturing expenses		**25,044**	28,610	25,843
Production and similar taxes	5	**1,779**	2,325	1,308
Depreciation, depletion and amortization	5	**15,928**	14,318	14,805
Net impairment and losses on sale of businesses and fixed assets	4	**5,857**	30,522	(1,121)
Exploration expense	8	**997**	585	424
Distribution and administration expenses		**16,772**	13,449	11,931
Profit (loss) before interest and taxation		**27,348**	18,039	18,082
Finance costs	7	**3,840**	2,703	2,857
Net finance (income) expense relating to pensions and other post-retirement benefits	24	**(241)**	(69)	(2)
Profit (loss) before taxation		**23,749**	15,405	15,227
Taxation	9	**7,869**	16,762	6,740
Profit (loss) for the year		**15,880**	(1,357)	8,487
Attributable to				
bp shareholders		**15,239**	(2,487)	7,565
Non-controlling interests		**641**	1,130	922
		15,880	(1,357)	8,487
Earnings per share				
Profit (loss) for the year attributable to bp shareholders				
Per ordinary share (cents)				
Basic	11	**87.78**	(13.10)	37.57
Diluted	11	**85.85**	(13.10)	37.33
Per ADS (dollars)				
Basic	11	**5.27**	(0.79)	2.25
Diluted	11	**5.15**	(0.79)	2.24

Group statement of comprehensive income[a]

For the year ended 31 December	Note	2023	2022	$ million 2021
Profit (loss) for the year		**15,880**	(1,357)	8,487
Other comprehensive income				
Items that may be reclassified subsequently to profit or loss				
Currency translation differences		**585**	(3,786)	(921)
Exchange (gains) losses on translation of foreign operations reclassified to gain or loss on sale of businesses and fixed assets		**(2)**	10,759	36
Cash flow hedges marked to market	30	**1,065**	(825)	(430)
Cash flow hedges reclassified to the income statement	30	**(428)**	1,502	255
Costs of hedging marked to market	30	**(67)**	61	(105)
Costs of hedging reclassified to the income statement	30	**(11)**	25	21
Share of items relating to equity-accounted entities, net of tax	16, 17	**(192)**	402	44
Income tax relating to items that may be reclassified	9	**(10)**	(334)	65
		940	7,804	(1,035)
Items that will not be reclassified to profit or loss				
Remeasurements of the net pension and other post-retirement benefit liability or asset	24	**(2,262)**	340	4,416
Remeasurements of equity investments		**51**	—	—
Cash flow hedges that will subsequently be transferred to the balance sheet	30	**15**	(4)	1
Income tax relating to items that will not be reclassified	9	**745**	68	(1,317)
		(1,451)	404	3,100
Other comprehensive income		**(511)**	8,208	2,065
Total comprehensive income		**15,369**	6,851	10,552
Attributable to				
bp shareholders		**14,702**	5,782	9,654
Non-controlling interests		**667**	1,069	898
		15,369	6,851	10,552

[a] See Note 32 for further information.

Group statement of changes in equity[a]

									$ million
							Non-controlling interests		
	Share capital and capital reserves	Treasury shares	Foreign currency translation reserve	Fair value reserves	Profit and loss account	bp shareholders' equity	Hybrid bonds	Other interest	Total equity
At 1 January 2023	**47,873**	**(12,153)**	**(2,643)**	**(256)**	**34,732**	**67,553**	**13,390**	**2,047**	**82,990**
Profit for the year	**–**	**–**	**–**	**–**	**15,239**	**15,239**	**586**	**55**	**15,880**
Other comprehensive income	**–**	**–**	**728**	**431**	**(1,696)**	**(537)**	**–**	**26**	**(511)**
Total comprehensive income	**–**	**–**	**728**	**431**	**13,543**	**14,702**	**586**	**81**	**15,369**
Dividends[b]	**–**	**–**	**–**	**–**	**(4,831)**	**(4,831)**	**–**	**(403)**	**(5,234)**
Cash flow hedges transferred to the balance sheet, net of tax	**–**	**–**	**–**	**(1)**	**–**	**(1)**	**–**	**–**	**(1)**
Repurchase of ordinary share capital	**–**	**–**	**–**	**–**	**(8,167)**	**(8,167)**	**–**	**–**	**(8,167)**
Share-based payments, net of tax	**140**	**830**	**–**	**–**	**(301)**	**669**	**–**	**–**	**669**
Share of equity-accounted entities' changes in equity, net of tax	**–**	**–**	**–**	**–**	**1**	**1**	**–**	**–**	**1**
Issue of perpetual hybrid bonds	**–**	**–**	**–**	**–**	**(1)**	**(1)**	**176**	**–**	**175**
Payments on perpetual hybrid bonds	**–**	**–**	**(5)**	**–**	**–**	**(5)**	**(586)**	**–**	**(591)**
Transactions involving non-controlling interests, net of tax	**–**	**–**	**–**	**–**	**363**	**363**	**–**	**(81)**	**282**
At 31 December 2023	**48,013**	**(11,323)**	**(1,920)**	**174**	**35,339**	**70,283**	**13,566**	**1,644**	**85,493**
At 1 January 2022	46,871	(12,624)	(9,572)	(1,027)	51,815	75,463	13,041	1,935	90,439
Profit for the year	–	–	–	–	(2,487)	(2,487)	519	611	(1,357)
Other comprehensive income	–	–	6,914	770	585	8,269	–	(61)	8,208
Total comprehensive income	–	–	6,914	770	(1,902)	5,782	519	550	6,851
Dividends[b]	–	–	–	–	(4,365)	(4,365)	–	(294)	(4,659)
Cash flow hedges transferred to the balance sheet, net of tax	–	–	–	1	–	1	–	–	1
Issue of ordinary share capital	820	–	–	–	–	820	–	–	820
Repurchase of ordinary share capital	–	–	–	–	(10,493)	(10,493)	–	–	(10,493)
Share-based payments, net of tax	182	471	–	–	194	847	–	–	847
Issue of perpetual hybrid bonds	–	–	–	–	(4)	(4)	374	–	370
Payments on perpetual hybrid bonds	–	–	15	–	–	15	(544)	–	(529)
Transactions involving non-controlling interests, net of tax	–	–	–	–	(513)	(513)	–	(144)	(657)
At 31 December 2022	47,873	(12,153)	(2,643)	(256)	34,732	67,553	13,390	2,047	82,990
At 1 January 2021	46,701	(13,224)	(8,719)	(808)	47,300	71,250	12,076	2,242	85,568
Profit for the year	–	–	–	–	7,565	7,565	507	415	8,487
Other comprehensive income	–	–	(846)	(209)	3,144	2,089	–	(24)	2,065
Total comprehensive income	–	–	(846)	(209)	10,709	9,654	507	391	10,552
Dividends[b]	–	–	–	–	(4,316)	(4,316)	–	(311)	(4,627)
Cash flow hedges transferred to the balance sheet, net of tax	–	–	–	(10)	–	(10)	–	–	(10)
Repurchase of ordinary share capital	–	–	–	–	(3,151)	(3,151)	–	–	(3,151)
Share-based payments, net of tax	170	600	–	–	(138)	632	–	–	632
Share of equity-accounted entities' changes in equity, net of tax	–	–	–	–	556	556	–	–	556
Issue of perpetual hybrid bonds	–	–	–	–	(26)	(26)	950	–	924
Payments on perpetual hybrid bonds	–	–	(7)	–	–	(7)	(492)	–	(499)
Transactions involving non-controlling interests, net of tax	–	–	–	–	881	881	–	(387)	494
At 31 December 2021	46,871	(12,624)	(9,572)	(1,027)	51,815	75,463	13,041	1,935	90,439

a See Note 32 for further information.
b See Note 10 for further information.

Group balance sheet

At 31 December	Note	2023	$ million 2022
Non-current assets			
Property, plant and equipment	12	**104,719**	106,044
Goodwill	14	**12,472**	11,960
Intangible assets	15	**9,991**	10,200
Investments in joint ventures	16	**12,435**	12,400
Investments in associates	17	**7,814**	8,201
Other investments	18	**2,189**	2,670
Fixed assets		**149,620**	151,475
Loans		**1,942**	1,271
Trade and other receivables	20	**1,767**	1,092
Derivative financial instruments	30	**9,980**	12,841
Prepayments		**623**	576
Deferred tax assets	9	**4,268**	3,908
Defined benefit pension plan surpluses	24	**7,948**	9,269
		176,148	180,432
Current assets			
Loans		**240**	315
Inventories	19	**22,819**	28,081
Trade and other receivables	20	**31,123**	34,010
Derivative financial instruments	30	**12,583**	11,554
Prepayments		**2,520**	2,092
Current tax receivable		**837**	621
Other investments	18	**843**	578
Cash and cash equivalents	25	**33,030**	29,195
		103,995	106,446
Assets classified as held for sale	2	**151**	1,242
		104,146	107,688
Total assets		**280,294**	288,120
Current liabilities			
Trade and other payables	22	**61,155**	63,984
Derivative financial instruments	30	**5,250**	12,618
Accruals		**6,527**	6,398
Lease liabilities	28	**2,650**	2,102
Finance debt	26	**3,284**	3,198
Current tax payable		**2,732**	4,065
Provisions	23	**4,418**	6,332
		86,016	98,697
Liabilities directly associated with assets classified as held for sale	2	**62**	321
		86,078	99,018
Non-current liabilities			
Other payables	22	**10,076**	10,387
Derivative financial instruments	30	**10,402**	13,537
Accruals		**1,310**	1,233
Lease liabilities	28	**8,471**	6,447
Finance debt	26	**48,670**	43,746
Deferred tax liabilities	9	**9,617**	10,526
Provisions	23	**14,721**	14,992
Defined benefit pension plan and other post-retirement benefit plan deficits	24	**5,456**	5,244
		108,723	106,112
Total liabilities		**194,801**	205,130
Net assets		**85,493**	82,990
Equity			
bp shareholders' equity	32	**70,283**	67,553
Non-controlling interests	32	**15,210**	15,437
Total equity	32	**85,493**	82,990

Helge Lund Chair
Murray Auchincloss Chief executive offic[redacted]
8 March 2024

★ See glossary on **page 373**

Group cash flow statement

For the year ended 31 December	Note	2023	2022	2021
				$ million
Operating activities				
Profit (loss) before taxation		**23,749**	15,405	15,227
Adjustments to reconcile profit before taxation to net cash provided by operating activities				
Exploration expenditure written off	8	**746**	385	167
Depreciation, depletion and amortization	5	**15,928**	14,318	14,805
Impairment and (gain) loss on sale of businesses and fixed assets	4	**5,488**	26,656	(2,997)
Earnings from joint ventures and associates		**(898)**	(2,530)	(3,999)
Dividends received from joint ventures and associates		**2,092**	1,700	1,842
Interest receivable		**(1,265)**	(444)	(235)
Interest received		**1,119**	414	320
Finance costs	7	**3,840**	2,703	2,857
Interest paid		**(2,950)**	(2,208)	(2,474)
Net finance expense relating to pensions and other post-retirement benefits	24	**(241)**	(69)	(2)
Share-based payments		**616**	795	627
Net operating charge for pensions and other post-retirement benefits, less contributions and benefit payments for unfunded plans	24	**(193)**	(257)	(655)
Net charge for provisions, less payments		**(2,481)**	440	2,934
(Increase) decrease in inventories		**5,634**	(5,492)	(7,458)
(Increase) decrease in other current and non-current assets		**4,620**	(18,584)	(13,263)
Increase (decrease) in other current and non-current liabilities		**(13,592)**	17,806	20,095
Income taxes paid		**(10,173)**	(10,106)	(4,179)
Net cash provided by operating activities		**32,039**	40,932	23,612
Investing activities				
Expenditure on property, plant and equipment, intangible and other assets		**(14,285)**	(12,069)	(10,887)
Acquisitions, net of cash acquired	3	**(799)**	(3,530)	(186)
Investment in joint ventures		**(1,039)**	(600)	(1,440)
Investment in associates		**(130)**	(131)	(335)
Total cash capital expenditure		**(16,253)**	(16,330)	(12,848)
Proceeds from disposals of fixed assets	4	**133**	709	1,145
Proceeds from disposals of businesses, net of cash disposed	4	**1,193**	1,841	5,812
Proceeds from loan repayments		**55**	67	197
Net cash used in investing activities		**(14,872)**	(13,713)	(5,694)
Financing activities				
Repurchase of shares		**(7,918)**	(9,996)	(3,151)
Lease liability payments		**(2,560)**	(1,961)	(2,082)
Proceeds from long-term financing		**7,568**	2,013	6,987
Repayments of long-term financing		**(3,902)**	(11,697)	(16,804)
Net increase (decrease) in short-term debt		**(861)**	(1,392)	1,077
Issue of perpetual hybrid bonds		**175**	370	924
Payments relating to perpetual hybrid bonds		**(1,008)**	(708)	(538)
Payments relating to transactions involving non-controlling interests (other)		**(187)**	(9)	(560)
Receipts relating to transactions involving non-controlling interests (other)		**546**	11	683
Dividends paid				
bp shareholders	10	**(4,809)**	(4,358)	(4,304)
Non-controlling interests		**(403)**	(294)	(311)
Net cash provided by (used in) financing activities		**(13,359)**	(28,021)	(18,079)
Currency translation differences relating to cash and cash equivalents		**27**	(684)	(269)
Increase (decrease) in cash and cash equivalents		**3,835**	(1,486)	(430)
Cash and cash equivalents at beginning of year		**29,195**	30,681	31,111
Cash and cash equivalents at end of year		**33,030**	29,195	30,681

Notes on financial statements

1. Material accounting policy information, significant judgements, estimates and assumptions

Authorization of financial statements and statement of compliance with International Financial Reporting Standards

The consolidated financial statements of BP p.l.c and its subsidiaries (collectively referred to as bp or the group) were approved and signed by the chief executive officer and chairman on 8 March 2024 having been duly authorized to do so by the board of directors. BP p.l.c. is a public limited company incorporated and domiciled in England and Wales. The consolidated financial statements have been prepared in accordance with United Kingdom adopted international accounting standards and International Financial Reporting Standards (IFRSs) as issued by the International Accounting Standards Board (IASB) and as adopted by the European Union (EU) and in accordance with the provisions of the UK Companies Act 2006 as applicable to companies reporting under international accounting standards. IFRS as adopted by the UK does not differ from IFRS as adopted by the EU. IFRS as adopted by the UK and EU differs in certain respects from IFRS as issued by the IASB. The differences have no impact on the group's consolidated financial statements for the years presented. The material accounting policy information and accounting judgements, estimates and assumptions of the group are set out below.

Basis of preparation

The consolidated financial statements have been prepared on a going concern basis and in accordance with IFRS and IFRS Interpretations Committee (IFRIC) interpretations issued and effective for the year ended 31 December 2023. The accounting policies that follow have been consistently applied to all years presented, except where otherwise indicated.

The consolidated financial statements are presented in US dollars and all values are rounded to the nearest million dollars ($ million), except where otherwise indicated.

Material accounting policy information: use of judgements, estimates and assumptions

Inherent in the application of many of the accounting policies used in preparing the consolidated financial statements is the need for bp management to make judgements, estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities, and the reported amounts of revenues and expenses. Actual outcomes could differ from the estimates and assumptions used. The accounting judgements and estimates that have a significant impact on the results of the group are set out in boxed text below, and should be read in conjunction with the information provided in the Notes on financial statements.

The areas requiring the most significant judgement and estimation in the preparation of the consolidated financial statements are: accounting for the investments in Rosneft and Aker BP; exploration and appraisal intangible assets; the recoverability of asset carrying values, including the estimation of reserves; supplier financing arrangements; derivative financial instruments; provisions and contingencies; pensions and other post-retirement benefits; and taxation. Judgements and estimates, not all of which are significant, made in assessing the impact of the current economic and geopolitical environment, and climate change and the transition to a lower carbon economy on the consolidated financial statements are also set out in boxed text below. Where an estimate has a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year this is specifically noted within the boxed text.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Judgements and estimates made in assessing the impact of climate change and the transition to a lower carbon economy

Climate change and the transition to a lower carbon economy were considered in preparing the consolidated financial statements. These may have significant impacts on the currently reported amounts of the group's assets and liabilities discussed below and on similar assets and liabilities that may be recognized in the future. The group's assumptions for investment appraisal (see page 30) form part of an investment decision-making framework for currently unsanctioned future capital expenditure on property, plant and equipment, and intangibles including exploration and appraisal assets, that is designed to support the effective and resilient implementation of bp's strategy. The price assumptions used for investment appraisal include oil and gas price assumptions, which are producer prices and are therefore net of any future carbon prices that the purchaser may be required to pay, and an assumption of a single carbon emissions cost imposed on the producer in respect of operational greenhouse gas (GHG) emissions (carbon dioxide and methane) in order to incentivize engineering solutions to mitigate GHG emissions on projects. The group's oil and gas price assumptions for value-in-use impairment testing are aligned with those investment appraisal assumptions. The assumptions for future carbon emissions costs in value-in-use impairment testing differ from the investment appraisal assumptions and are described below.

Management has also not identified any off-balance sheet commodity purchase obligations to be onerous contracts as result of the transition to a lower carbon economy at 31 December 2023.

Impairment of property, plant and equipment and goodwill

The energy transition is likely to impact the future prices of commodities such as oil and natural gas which in turn may affect the recoverable amount of property, plant and equipment and goodwill in the oil and gas industry. Management's best estimate of oil and natural gas price assumptions for value-in-use impairment testing were revised during 2023. Prices are disclosed in real 2022 terms. The near term Brent oil assumption was held constant at $70 per barrel to reflect near-term supply constraints before declining after 2030 to $50 per barrel by 2050 continuing to reflect the assumption that as the energy system decarbonizes, falling oil demand will cause oil prices to decline. The price assumptions for Henry Hub gas up to 2050 were held constant at $4.00 per mmBtu reflecting an assumption that declining domestic demand in the US is offset by higher LNG exports. The revised assumptions for Brent oil and Henry Hub gas sit within the range of external scenarios considered by management and are in line with a range of transition paths consistent with the temperature goal of the Paris climate change agreement, of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

As noted above, the group's investment appraisal process includes a carbon emissions price series for the investment economics which is applied to bp's anticipated share of bp's forecast of the investment assets' scope 1 and 2 GHG emissions where they exceed defined thresholds, and is assumed to apply whether or not bp is the asset operator. However, for value-in-use impairment testing on bp's existing cash generating units (CGUs), consistent with all other relevant cash flows estimated, bp is required to reflect management's best estimate of any expected applicable carbon emission costs payable by bp, including where bp is not the operator, in the future for each jurisdiction in which the group has interests. This requires management's best estimate of how future changes to relevant carbon emission cost policies and/or legislation are likely to affect the future cash flows of the group's applicable CGUs, whether currently enacted or not. Future potential carbon pricing and/or costs of carbon emissions allowances are included in the value-in-use calculations to the extent management has sufficient information to make such an estimate. Currently this results in limited application of carbon price assumptions in value-in-use impairment tests given that carbon pricing legislation in most impacted jurisdictions where the group has interests is not in place and there is not sufficient information available as to the relevant policy makers' future intentions regarding carbon pricing to support an estimate. A key input into the determination of impairment is the assumption, aligned with bp's aim to reach net zero greenhouse gas emissions by 2050 or sooner, that the current recognized portfolio of oil and gas properties and refining assets will have an immaterial carrying value by 2050.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Where we consider that the outcome of a value-in-use impairment test could be significantly affected by a carbon price in place in any jurisdiction, this is incorporated into the value-in use impairment testing cash flows. The most significant instances where a carbon price has been incorporated in the 2023 value-in-use impairment tests is for the UK North Sea and the Gelsenkirchen refinery. The assumptions for UK North Sea were £45/tCO_2e in 2024 gradually increasing to £201/tCO_2e in 2050. The assumption applied for the Gelsenkirchen refinery was an average of approximately €72/tCO_2e.

However, as bp's forecast future prices are producer prices, the group considers it reasonable to assume that if, in addition to the costs already in place, further scope 1 and 2 emission costs were partially to be borne directly by oil and gas producers including bp in future and the prevalence of such costs were to become widespread, the gross oil and gas prices realized by producers would be correspondingly higher over the long term, resulting in no expected overall materially negative impacts on the group's net cash flows. See significant judgements and estimates: recoverability of asset carrying values for further information including sensitivity analysis in relation to reasonably possible changes in the price assumptions and carbon costs.

Production assumptions within upstream property, plant and equipment and goodwill value-in-use impairment tests reflect management's current best estimate of future production of the existing upstream portfolio. The group sees the expected reduction in upstream hydrocarbon production by around 25% by 2030 from its 2019 baseline (see page 13) being achieved through future active management, including divestments, and high-grading of the portfolio. Changes in upstream production since 2019 will be included in the best estimate to the extent the divestments have been announced or completed however, as the specific future changes to the remainder of the portfolio are not yet known, the current best estimate used for accounting purposes does not include the full extent of the expected upstream production reduction. See significant judgements and estimates: recoverability of asset carrying values and Note 14 for sensitivity analyses in relation to reasonably possible changes in production for upstream oil and gas properties and goodwill respectively.

Impairment charges were recognized on certain upstream oil and gas properties partly as a result of price and discount rate changes. See Note 4 for further information.

For the customers & products segment, though the energy transition may impact demand for certain refined products in the future, management anticipates sufficiently robust demand for the remainder of each refinery's useful life.

Management will continue to review price assumptions as the energy transition progresses and this may result in impairment charges or reversals in the future.

Exploration and appraisal intangible assets

The energy transition may affect the future development or viability of exploration prospects. The recoverability of the group's exploration and appraisal intangible assets was considered during 2023. No significant write-offs were identified. These assets will continue to be assessed as the energy transition progresses. See significant judgement: exploration and appraisal intangible assets and Note 8 for further information.

Property, plant and equipment – depreciation and expected useful lives

The energy transition may curtail the expected useful lives of oil and gas industry assets thereby accelerating depreciation charges. However, a significant majority of bp's existing upstream oil and natural gas properties are likely to have immaterial carrying values within the next 12 years and, as outlined in bp's strategy, oil and natural gas production will remain an important part of bp's business activities over that period. The significant majority of refining assets, recognized on the group's balance sheet at 31 December 2023 that are subject to depreciation, will be depreciated within the next 12 years; demand for refined products is expected to remain sufficient to support the remaining useful lives of existing assets. Therefore, management does not expect the useful lives of bp's reported property, plant and equipment to change and do not consider this to be a significant accounting judgement or estimate. Significant capital expenditure is still required for ongoing projects as well as renewal and/or replacement of aged assets and therefore the useful lives of future capital expenditure may be different. See material accounting policy: property, plant and equipment for more information.

Provisions: decommissioning

The energy transition may bring forward the decommissioning of oil and gas industry assets thereby increasing the present value of associated decommissioning provisions. The majority of bp's existing upstream oil and gas properties are expected to start decommissioning within the next two decades. The group's expectation to reduce its upstream hydrocarbon production by around 25% by 2030 from its 2019 baseline (see page 13) is expected to be achieved through future active management, including divestments, and high-grading of the portfolio. Any resulting increases or decreases to the weighted average timing of decommissioning will be driven by the profile of assets held in the revised portfolio. Currently, the expected timing of decommissioning expenditures for the upstream oil and gas assets in the group's portfolio has not materially been brought forward. Management does not expect a reasonably possible change of two years in the expected timing of all decommissioning to have a material effect on the upstream decommissioning provisions, assuming cost assumptions remain unchanged.

Decommissioning cost estimates are based on the known regulatory and external environment. These cost estimates may change in the future, including as a result of the transition to a lower carbon economy. For refineries, decommissioning provisions are generally not recognized as the associated obligations have indeterminate settlement dates, typically driven by the cessation of manufacturing. Management does not expect manufacturing to cease at refineries within a determinate period of time, as existing property, plant and equipment is expected to be renewed or replaced. Management will continue to review facts and circumstances to assess if decommissioning provisions need to be recognized. Decommissioning provisions relating to refineries at 31 December 2023 are not material. See significant judgements and estimates: provisions for further information.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Judgements and estimates made in assessing the impact of the geopolitical and economic environment

In preparing the consolidated financial statements, the following areas involving judgement and estimates were identified as most relevant with regards to the impact of the current geopolitical and economic environment.

Oil and gas price assumptions

Oil and gas price assumptions applied in value-in-use impairment testing have been updated to reflect the current outlook on Brent oil supply constraints and an assumption that declining domestic natural gas demand in the US is offset by higher LNG exports. See significant judgements and estimates: recoverability of asset carrying values for further information.

Discount rate assumptions

The discount rates used for impairment testing and provisions were reassessed during the year in light of changing economic and geopolitical outlooks. The nominal discount rate applied to provisions was increased during the year to reflect higher US Treasury yields. The principal impact of this rate increase was a $0.9 billion decrease in the decommissioning provision with an associated decrease in the carrying amount of property, plant and equipment of $0.7 billion and a pre-tax credit to the income statement of $0.2 billion. Impairment discount rates were also increased from those reported in 2022. See significant judgements and estimates: recoverability of asset carrying values and provisions for further information.

Pensions and other post-retirement benefits

The volatility in the financial markets during 2023 impacted the assumptions used for determining the fair value of plan assets and the present value of defined benefit obligations in the group's defined benefit pension plans. See significant estimate: pensions and other post-retirement benefits and Note 24 for further information.

Basis of consolidation

The group financial statements consolidate the financial statements of BP p.l.c. and its subsidiaries drawn up to 31 December each year. Subsidiaries are consolidated from the date of their acquisition, being the date on which the group obtains control, including when control is obtained via potential voting rights, and continue to be consolidated until the date that control ceases.

The financial statements of subsidiaries are prepared for the same reporting year as the parent company, using consistent accounting policies. Intra-group balances and transactions, including unrealized profits arising from intra-group transactions, have been eliminated. Unrealized losses are eliminated unless the transaction provides evidence of an impairment of the asset transferred.

Non-controlling interests represent the equity in subsidiaries that is not attributable, directly or indirectly, to bp shareholders. Included within non-controlling interests are perpetual subordinated hybrid securities issued by subsidiaries and for which the group has the unconditional right to avoid transferring cash or another financial asset to the holders. Profit or loss attributable to bp shareholders is adjusted to reflect the coupon/interest related to these hybrid securities whether or not such distribution has been deferred.

Interests in other entities

Business combinations and goodwill

Business combinations are accounted for using the acquisition method. The identifiable assets acquired and liabilities assumed are recognized at their fair values at the acquisition date.

Goodwill is initially measured as the excess of the aggregate of the consideration transferred, the amount recognized for any non-controlling interest and the acquisition-date fair values of any previously held interest in the acquiree over the fair value of the identifiable assets acquired and liabilities assumed at the acquisition date. The amount recognized for any non-controlling interest is measured at the present ownership's proportionate share in the recognized amounts of the acquiree's identifiable net assets. At the acquisition date, any goodwill acquired is allocated to each of the cash-generating units, or groups of cash-generating units, expected to benefit from the combination's synergies. Following initial recognition, goodwill is measured at cost less any accumulated impairment losses. Goodwill arising on business combinations prior to 1 January 2003 is stated at the previous carrying amount under UK generally accepted accounting practice, less subsequent impairments.

Goodwill may arise upon investments in joint ventures and associates, being the surplus of the cost of investment over the group's share of the net fair value of the identifiable assets and liabilities. Any such goodwill is recorded within the corresponding investment in joint ventures and associates.

Goodwill may also arise upon acquisition of interests in joint operations that meet the definition of a business. The amount of goodwill separately recognized is the excess of the consideration transferred over the group's share of the net fair value of the identifiable assets and liabilities.

Interests in joint arrangements

The results, assets and liabilities of joint ventures are incorporated in these consolidated financial statements using the equity method of accounting as described below.

Certain of the group's activities, particularly in the oil production & operations and gas & low carbon energy segments, are conducted through joint operations. bp recognizes, on a line-by-line basis in the consolidated financial statements, its share of the assets, liabilities and expenses of these joint operations incurred jointly with the other partners, along with the group's revenue from the sale of its share of the output and any liabilities and expenses that the group has incurred in relation to the joint operation.

For joint arrangements in a separate entity, judgement may be required as to whether the arrangement should be classified as a joint venture or if the legal form, contractual arrangements or other facts and circumstances indicate that the group has rights to the assets and obligations for the liabilities of the arrangement, rather than rights to the net assets, and therefore should be classified as a joint operation. No such judgement made by the group is considered significant.

Interests in associates

The results, assets and liabilities of associates are incorporated in these consolidated financial statements using the equity method of accounting as described below.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Significant judgement: investment in Aker BP

Judgement is required in assessing the level of control or influence over another entity in which the group holds an interest. For bp, the judgement that the group has significant influence over Aker BP, a Norwegian oil and gas company, is significant.

As a consequence of this judgement, bp uses the equity method of accounting for its investment and bp's share of Aker BP's oil and natural gas reserves is included in the group's estimated net proved reserves of equity-accounted entities. If significant influence was not present, the investment would be accounted for as an investment in an equity instrument measured at fair value as described under 'Financial assets' below and no share of Aker BP's oil and natural gas reserves would be reported.

Significant influence is defined in IFRS as the power to participate in the financial and operating policy decisions of the investee but is not control or joint control of those decisions. Significant influence is presumed when an entity owns 20% or more of the voting power of the investee. Significant influence is presumed not to be present when an entity owns less than 20% of the voting power of the investee.

bp owned 15.9% of the voting shares at 31 December 2023. bp's group chief executive officer, Murray Auchincloss, has been a member of the Aker BP board since 2017. bp's other nominated director, group chief financial officer, Kate Thomson, has been a member of the Aker BP board since formation of that company in 2016. She is also a member of the Aker BP board's Audit and Risk Committee. bp also holds the voting rights at general meetings of shareholders conferred by its stake in Aker BP. bp's management considers, therefore, that the group continues to have significant influence at 31 December 2023.

Significant judgements and estimate: investment in Rosneft

Since the first quarter 2022, bp accounts for its interest in Rosneft and its other businesses with Rosneft within Russia, as financial assets measured at fair value within 'Other investments'. bp is not able to sell its Rosneft shares on the Moscow Stock Exchange and is unable to ascribe probabilities to possible outcomes of any exit process. It is considered by management that any measure of fair value, other than nil, would be subject to such high measurement uncertainty, considering the sanctions and restrictions implemented by Russia on Russian assets held by foreign investors, that no estimate would provide useful information even if it were accompanied by a description of the estimate made in producing it and an explanation of the uncertainties that affect the estimate. Accordingly, it is not currently possible to estimate any carrying value other than zero when determining the measurement of the interest in Rosneft and the other businesses with Rosneft within Russia as at 31 December 2023. Events or outcomes within the next financial year, that are different to those outlined above, could materially change the fair value of the investment.

Russia has imposed restrictions on the payments of dividends to certain foreign shareholders, including those based in the UK, requiring such dividends to be paid in roubles into restricted bank accounts and a requirement for approval of the Russian government for transfers from any such bank accounts out of Russia. Given the restrictions applicable to such accounts, management has made the significant judgement that the criteria for recognizing any dividend income from Rosneft and its other businesses with Rosneft within Russia, for the years to 31 December 2022 and 31 December 2023 have not been met.

The equity method of accounting

Under the equity method, an investment is carried on the balance sheet at cost plus post-acquisition changes in the group's share of net assets of the entity, less distributions received and less any impairment in value of the investment. Loans advanced to equity-accounted entities that have the characteristics of equity financing are also included in the investment on the group balance sheet. The group income statement reflects the group's share of the results after tax of the equity-accounted entity, adjusted to account for depreciation, amortization and any impairment of the equity-accounted entity's assets based on their fair values at the date of acquisition. The group statement of comprehensive income includes the group's share of the equity-accounted entity's other comprehensive income. The group's share of amounts recognized directly in equity by an equity-accounted entity is recognized in the group's statement of changes in equity.

Financial statements of equity-accounted entities are typically prepared for the same reporting year as the group. Where material differences arise in the accounting policies used by the equity-accounted entity and those used by bp, adjustments are made to those financial statements to bring the accounting policies used into line with those of the group. Unrealized gains on transactions, apart from those that meet the definition of a derivative, between the group and its equity-accounted entities are eliminated to the extent of the group's interest in the equity-accounted entity. This includes unrealized gains arising on contribution of a business on formation of an equity-accounted entity.

Segmental reporting

The group's operating segments are established on the basis of those components of the group that are evaluated regularly by the chief executive officer, bp's chief operating decision maker, in deciding how to allocate resources and in assessing performance.

The accounting policies of the operating segments are the same as the group's accounting policies described in this note, except that IFRS requires that the measure of profit or loss disclosed for each operating segment is the measure that is provided regularly to the chief operating decision maker. For bp, this measure of profit or loss is replacement cost profit before interest and tax which reflects the replacement cost of inventories sold in the period and is arrived at by excluding inventory holding gains and losses from profit before interest and tax. Replacement cost profit for the group is not a recognized measure under IFRS.

For further information see Note 5.

Foreign currency translation

In individual subsidiaries, joint ventures and associates, transactions in foreign currencies are initially recorded in the functional currency of those entities at the spot exchange rate on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated into the functional currency at the spot exchange rate on the balance sheet date. Any resulting exchange differences are included in the income statement, unless hedge accounting is applied. Non-monetary items, other than those measured at fair value, are not retranslated subsequent to initial recognition.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

In the consolidated financial statements, the assets and liabilities of non-US dollar functional currency subsidiaries, joint ventures, associates, and related goodwill, are translated into US dollars at the spot exchange rate on the balance sheet date. The results and cash flows of non-US dollar functional currency subsidiaries, joint ventures and associates are translated into US dollars using average rates of exchange. In the consolidated financial statements, exchange adjustments arising when the opening net assets and the profits for the year retained by non-US dollar functional currency subsidiaries, joint ventures and associates are translated into US dollars are recognized in a separate component of equity and reported in other comprehensive income. Exchange gains and losses arising on long-term intra-group foreign currency borrowings used to finance the group's non-US dollar investments are also reported in other comprehensive income if the borrowings form part of the net investment in the subsidiary, joint venture or associate. On disposal or for certain partial disposals of a non-US dollar functional currency subsidiary, joint venture or associate, the related accumulated exchange gains and losses recognized in equity are reclassified from equity to the income statement.

Non-current assets held for sale

Non-current assets and disposal groups classified as held for sale are measured at the lower of carrying amount and fair value less costs to sell.

Significant non-current assets and disposal groups are classified as held for sale if their carrying amounts will be recovered through a sale transaction rather than through continuing use. This condition is regarded as met only when the sale is highly probable and the asset or disposal group is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such assets. Management must be committed to the sale, which should be expected to qualify for recognition as a completed sale within one year from the date of classification as held for sale, and actions required to complete the plan of sale should indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

Property, plant and equipment and intangible assets are not depreciated or amortized, and equity accounting of associates and joint ventures is ceased once classified as held for sale.

Intangible assets

Intangible assets, other than goodwill, include expenditure on the exploration for and evaluation of oil and natural gas resources, biogas rights agreements, digital assets, patents, licences and trademarks and are stated at the amount initially recognized, less accumulated amortization and accumulated impairment losses.

Intangible assets are carried initially at cost unless acquired as part of a business combination. Any such asset is measured at fair value at the date of the business combination and is recognized separately from goodwill if the asset is separable or arises from contractual or other legal rights.

Intangible assets with a finite life, other than capitalized exploration and appraisal costs as described below, are amortized on a straight-line basis over their expected useful lives. For patents, licences and trademarks, expected useful life is the shorter of the duration of the legal agreement and economic useful life, and can range from three to fifteen years. The expected useful life of biogas rights agreements is the shorter of the duration of the legal agreement and economic useful life and can be up to 50 years. Digital asset costs generally have a useful life of three to five years.

The expected useful lives of assets and the amortization method are reviewed on an annual basis and, if necessary, changes in useful lives or the amortization method are accounted for prospectively.

Oil and natural gas exploration and appraisal expenditure

Oil and natural gas exploration and appraisal expenditure is accounted for using the principles of the successful efforts method of accounting as described below.

Licence and property acquisition costs

Exploration licence and leasehold property acquisition costs are capitalized within intangible assets and are reviewed at each reporting date to confirm that there is no indication that the carrying amount exceeds the recoverable amount. This review includes confirming that exploration drilling is still under way or planned or that it has been determined, or work is under way to determine, that the discovery is economically viable based on a range of technical and commercial considerations, and sufficient progress is being made on establishing development plans and timing. If no future activity is planned, the remaining balance of the licence and property acquisition costs is written off. Lower value licences are pooled and amortized on a straight-line basis over the estimated period of exploration. Upon internal approval for development and recognition of proved or sanctioned probable reserves of oil and natural gas, the relevant expenditure is transferred to property, plant and equipment.

Exploration and appraisal expenditure

Geological and geophysical exploration costs are recognized as an expense as incurred. Costs directly associated with an exploration well are initially capitalized as an intangible asset until the drilling of the well is complete and the results have been evaluated. These costs include employee remuneration, materials and fuel used, rig costs and payments made to contractors. If potentially commercial quantities of hydrocarbons are not found, the exploration well costs are written off. If hydrocarbons are found and, subject to further appraisal activity, are likely to be capable of commercial development, the costs continue to be carried as an asset. If it is determined that development will not occur, that is, the efforts are not successful, then the costs are expensed.

Costs directly associated with appraisal activity undertaken to determine the size, characteristics and commercial potential of a reservoir following the initial discovery of hydrocarbons, including the costs of appraisal wells where hydrocarbons were not found, are initially capitalized as an intangible asset. Upon internal approval for development and recognition of proved or sanctioned probable reserves, the relevant expenditure is transferred to property, plant and equipment. If development is not approved and no further activity is expected to occur, then the costs are expensed.

The determination of whether potentially economic oil and natural gas reserves have been discovered by an exploration well is usually made within one year of well completion, but can take longer, depending on the complexity of the geological structure. Exploration wells that discover potentially economic quantities of oil and natural gas and are in areas where major capital expenditure (e.g. an offshore platform or a pipeline) would be required before production could begin, and where the economic viability of that major capital expenditure depends on the successful completion of further exploration or appraisal work in the area, remain capitalized on the balance sheet as long as such work is under way or firmly planned.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Significant judgement: exploration and appraisal intangible assets

Judgement is required to determine whether it is appropriate to continue to carry costs associated with exploration wells and exploratory-type stratigraphic test wells on the balance sheet. This includes costs relating to exploration licences or leasehold property acquisitions. It is not unusual to have such costs remaining suspended on the balance sheet for several years while additional appraisal drilling and seismic work on the potential oil and natural gas field is performed or while the optimum development plans and timing are established. The costs are carried based on the current regulatory and political environment or any known changes to that environment. All such carried costs are subject to regular technical, commercial and management review on at least an annual basis to confirm the continued intent to develop, or otherwise extract value from, the discovery. Where this is no longer the case, the costs are immediately expensed.

The carrying amount of capitalized costs are included in Note 8.

Property, plant and equipment

Property, plant and equipment owned by the group is stated at cost, less accumulated depreciation and accumulated impairment losses. The initial cost of an asset comprises its purchase price or construction cost, any costs directly attributable to bringing the asset into the location and condition necessary for it to be capable of operating in the manner intended by management, the initial estimate of any decommissioning obligation, if applicable, and, for assets that necessarily take a substantial period of time to get ready for their intended use, directly attributable general or specific finance costs. The purchase price or construction cost is the aggregate amount paid and the fair value of any other consideration given to acquire the asset.

Expenditure on major maintenance refits or repairs comprises the cost of replacement assets or parts of assets, inspection costs and overhaul costs. Where an asset or part of an asset that was separately depreciated is replaced and it is probable that future economic benefits associated with the item will flow to the group, the expenditure is capitalized and the carrying amount of the replaced asset is derecognized. Inspection costs associated with major maintenance programmes are capitalized and amortized over the period to the next inspection. Overhaul costs for major maintenance programmes, and all other maintenance costs are expensed as incurred.

Expenditure on the construction, installation and completion of infrastructure facilities such as platforms, pipelines and the drilling of development wells, including service and unsuccessful development or delineation wells, is capitalized within property, plant and equipment and is depreciated from the commencement of production.

Oil and natural gas properties, including certain related pipelines, are depreciated using a unit-of-production method. The cost of producing wells is amortized over proved developed reserves. Licence acquisition, common facilities and future decommissioning costs are amortized over total proved reserves. The unit-of-production rate for the depreciation of common facilities takes into account expenditures incurred to date, together with estimated future capital expenditure expected to be incurred relating to as yet undeveloped reserves expected to be processed through these common facilities. Information on the carrying amounts of the group's oil and natural gas properties, together with the amounts recognized in the income statement as depreciation, depletion and amortization is contained in Note 12 and Note 5 respectively.

Estimates of oil and natural gas reserves determined in accordance with US Securities and Exchange Commission (SEC) regulations, including the application of prices using 12-month historical price data in assessing the commerciality of technical volumes, are typically used to calculate depreciation, depletion and amortization charges for the group's oil and gas properties. Therefore, where this approach is adopted, charges are not dependent on management forecasts of future oil and gas prices.

However, for certain oil and natural gas assets, the use of reserves determined in accordance with SEC regulations would result in a charge that is not reflective of the pattern in which the future economic benefits are expected to be consumed. In these limited instances other approaches are applied to determine the reserves base used to calculate depreciation, depletion and amortization, including the use of management's best estimate of price assumptions as disclosed in Significant judgements and estimates: recoverability of asset carrying values, to determine the commerciality of technical proved reserves.

The impact of changes in estimated proved reserves is dealt with prospectively by amortizing the remaining carrying value of the asset over the expected future production.

The estimation of oil and natural gas reserves and bp's process to manage reserves bookings is described in Supplementary information on oil and natural gas on page 247, which is unaudited. Details on bp's proved reserves and production compliance and governance processes are provided on page 346. The 2023 movements in proved reserves are reflected in the tables showing movements in oil and natural gas reserves by region in Supplementary information on oil and natural gas (unaudited) on page 247.

Other property, plant and equipment is depreciated on a straight-line basis over its expected useful life. The typical useful lives of the group's other property, plant and equipment on initial recognition are as follows:

Land improvements	15 to 25 years
Buildings	20 to 50 years
Refineries	20 to 30 years
Pipelines	10 to 50 years
Service stations	15 years
Office equipment	3 to 10 years
Fixtures and fittings	5 to 15 years

The expected useful lives and depreciation method of property, plant and equipment are reviewed on an annual basis and, if necessary, changes in useful lives or the depreciation method are accounted for prospectively. An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the item) is included in the income statement in the period in which the item is derecognized.

★ See glossary on **page 373**

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Impairment of property, plant and equipment, intangible assets, goodwill, and equity-accounted entities

The group assesses assets or groups of assets, called cash-generating units (CGUs), for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or CGU may not be recoverable; for example, changes in the group's business plans, plans to dispose rather than retain assets, changes in the group's assumptions about discount rates, commodity prices, low plant utilization, evidence of physical damage or, for oil and gas assets, significant downward revisions of estimated reserves or increases in estimated future development expenditure or decommissioning costs. If any such indication of impairment exists, the group makes an estimate of the asset's or CGU's recoverable amount. Individual assets are grouped into CGUs for impairment assessment purposes at the lowest level at which there are identifiable cash inflows that are largely independent of the cash inflows of other groups of assets. A CGU's recoverable amount is the higher of its fair value less costs of disposal and its value in use. If it is probable that the value of the CGU will be primarily recovered through a disposal transaction, the expected disposal proceeds are considered in determining the recoverable amount. Where the carrying amount of a CGU exceeds its recoverable amount, the CGU is considered impaired and is written down to its recoverable amount.

The business segment plans, which are approved on an annual basis by senior management, are the primary source of information for the determination of value in use. They contain forecasts for oil and natural gas production, power generation, refinery throughputs, sales volumes for various types of refined products (e.g. gasoline and lubricants), revenues, costs and capital expenditure. Carbon taxes and costs of emissions allowances are included in estimates of future cash flows, where applicable, based on the regulatory environment in each jurisdiction in which the group operates. As an initial step in the preparation of these plans, various assumptions regarding market conditions, such as oil prices, natural gas prices, power prices, refining margins, refined product margins and cost inflation rates are set by senior management. These assumptions take account of existing prices, global supply-demand equilibrium for oil and natural gas, other macroeconomic factors and historical trends and variability. In assessing value in use, the estimated future cash flows are adjusted for the risks specific to the asset group to the extent that they are not already reflected in the discount rate and are discounted to their present value typically using a pre-tax discount rate that reflects current market assessments of the time value of money.

Fair value less costs of disposal is the price that would be received to sell the asset in an orderly transaction between market participants and does not reflect the effects of factors that may be specific to the group and not applicable to entities in general. Fair value may be determined by reference to agreed or expected sales proceeds, recent market transactions for similar assets or using discounted cash flow analyses. Where discounted cash flow analyses are used to calculate fair value less costs of disposal, estimates are made about the assumptions market participants would use when pricing the asset, CGU or group of CGUs containing goodwill and the test is performed on a post-tax basis.

An assessment is made at each reporting date as to whether there is any indication that previously recognized impairment losses may no longer exist or may have decreased. If such an indication exists, the recoverable amount is estimated. A previously recognized impairment loss is reversed only if there has been a change in the estimates used to determine the asset's or CGU's recoverable amount since the last impairment loss was recognized. If that is the case, the carrying amount of the asset or CGU is increased to the lower of its recoverable amount and the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset or CGU in prior years. Impairment reversals are recognized in profit or loss. After a reversal, the depreciation charge is adjusted in future periods to allocate the asset's or CGU's revised carrying amount, less any residual value, on a systematic basis over its remaining useful life.

Goodwill is reviewed for impairment annually or more frequently if events or changes in circumstances indicate the recoverable amount of the group of CGUs to which the goodwill relates should be assessed. In assessing whether goodwill has been impaired, the carrying amount of the group of CGUs to which goodwill has been allocated is compared with its recoverable amount. Where the recoverable amount of the group of CGUs is less than the carrying amount (including goodwill), an impairment loss is recognized. An impairment loss recognized for goodwill is not reversed in a subsequent period.

The group assesses investments in equity-accounted entities for impairment whenever there is objective evidence that the investment is impaired, after recognizing its share of any losses of the equity-accounted entity itself. If any such objective evidence of impairment exists, the carrying amount of the investment is compared with its recoverable amount, being the higher of its fair value less costs of disposal and value in use. If the carrying amount exceeds the recoverable amount, the investment is written down to its recoverable amount.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Significant judgements and estimates: recoverability of asset carrying values

Determination as to whether, and by how much, an asset, CGU, or group of CGUs containing goodwill is impaired involves management estimates on highly uncertain matters such as the effects of inflation and deflation on operating expenses, discount rates, capital expenditure, carbon pricing (where applicable), production profiles, reserves and resources, and future commodity prices, including the outlook for global or regional market supply-and-demand conditions for crude oil, natural gas, power and refined products. Judgement is required when determining the appropriate grouping of assets into a CGU or the appropriate grouping of CGUs for impairment testing purposes. For example, individual oil and gas properties may form separate CGUs whilst certain oil and gas properties with shared infrastructure may be grouped together to form a single CGU. Alternative groupings of assets or CGUs may result in a different outcome from impairment testing. See Note 14 for details on how these groupings have been determined in relation to the impairment testing of goodwill.

As described above, the recoverable amount of an asset is the higher of its value in use and its fair value less costs of disposal. Fair value less costs of disposal may be determined based on expected sales proceeds or similar recent market transaction data.

Details of impairment charges and reversals recognized in the income statement are provided in Note 4 and details on the carrying amounts of assets are shown in Note 12, Note 14 and Note 15.

The estimates for assumptions made in impairment tests in 2023 relating to discount rates and oil and gas properties are discussed below. Changes in the economic environment including as a result of the energy transition or other facts and circumstances may necessitate revisions to these assumptions and could result in a material change to the carrying values of the group's assets within the next financial year.

Discount rates

For discounted cash flow calculations, future cash flows are adjusted for risks specific to the CGU. Value-in-use calculations are typically discounted using a pre-tax discount rate based upon the cost of funding the group derived from an established model, adjusted to a pre-tax basis and incorporating a market participant capital structure and country risk premiums. Fair value less costs of disposal discounted cash flow calculations use a post-tax discount rate.

The discount rates applied in impairment tests are reassessed each year and, in 2023, the post-tax discount rate was 8% (2022 7%) other than for renewable power assets. Where the CGU is located in a country that was judged to be higher risk, an additional premium of 1% to 4% was reflected in the post-tax discount rate (2022 1% to 2%). The judgement of classifying a country as higher risk and the applicable premium takes into account various economic and geopolitical factors. The pre-tax discount rate, other than for renewable power assets, typically ranged from 9% to 20% (2022 7% to 18%) depending on the risk premium and applicable tax rate in the geographic location of the CGU. For renewable power assets tested on a value-in-use basis in 2023 (including those in equity accounted entities), where the risk profile of expected cash flows supports a lower rate, tests were performed using a post-tax WACC-based discount rate of 6.5%. For assets tested in 2022, the tests were performed on a fair value less costs of disposal basis using a post-tax cost of equity-based discount rate of 6%.

Oil and natural gas properties

For oil and natural gas properties in the oil production & operations and gas & low carbon energy segments, expected future cash flows are estimated using management's best estimate of future oil and natural gas prices, production and reserves and certain resources volumes. Forecast cash flows include the impact of all approved emission reduction projects. The estimated future level of production in all impairment tests is based on assumptions about future commodity prices, production and development costs, field decline rates, current fiscal regimes and other factors.

In 2023, the group identified oil and gas properties in these segments with carrying amounts totalling $18,374 million (2022 $11,652 million) where the headroom, based on the most recent impairment test performed in the year on those assets, was less than or equal to 20% of the carrying value. A change in the discount rate, reserves, resources or the oil and gas price assumptions in the next financial year may result in a recoverable amount of one or more of these assets above or below the current carrying amount and therefore there is a risk of impairment reversals or charges in that period. Management considers that reasonably possible changes in the discount rate or forecast revenue, arising from a change in oil and natural gas prices and/or production could result in a material change in their carrying amounts within the next financial year, see Sensitivity analyses, below.

The recoverability of intangible exploration and appraisal expenditure is covered under Oil and natural gas exploration, appraisal and development expenditure above.

Oil and natural gas prices

The price assumptions used for value-in-use impairment testing are based on those used for investment appraisal. bp's carbon emissions cost assumptions and their interrelationship with oil and gas prices are described in 'Judgements and estimates made in assessing the impact of climate change and the transition to a lower carbon economy' on page 170. The investment appraisal price assumptions are recommended by the senior vice president economic & energy insights after considering a range of external price sets, and supply and demand profiles associated with various energy transition scenarios. They are reviewed and approved by management. As a result of the current uncertainty over the pace of transition to lower-carbon supply and demand and the social, political and environmental actions that will be taken to meet the goals of the Paris climate change agreement, the scenarios considered include those where those goals are met as well as those where they are not met.

During the year, bp's price assumptions applied in value-in-use impairment testing (in real 2022 terms) for the near term Brent oil assumption was held constant at $70 per barrel to reflect near term supply constraints before declining after 2030 to $50 per barrel by 2050 continuing to reflect the assumption that as the energy system decarbonizes, falling oil demand will cause oil prices to decline. The price assumptions for Henry Hub gas up to 2050 were held constant at $4.00 per mmBtu reflecting an assumption that declining domestic demand in the US is offset by higher LNG exports. These price assumptions are derived from the central case investment appraisal assumptions, adjusted where applicable to reflect short-term market conditions (see page 30). A summary of the group's revised price assumptions for Brent oil and Henry Hub gas, applied in 2023 and 2022, in real 2022 terms, is provided below. The assumptions represent management's best estimate of future prices at the balance sheet date, which sit within the range of external scenarios considered as appropriate for the purpose. They are considered by bp to be in line with a range of transition paths consistent with the temperature goal of the Paris climate change agreement, of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels. However, they do not correspond to any specific Paris-consistent scenario. An inflation rate of 2% (2022 2%) is applied to determine the price assumptions in nominal terms.

The majority of bp's reserves and resources that support the carrying value of the group's existing oil and gas properties are expected to be produced over the next 12 years.

The recoverability of deferred tax assets is also affected by the group's oil and natural gas price assumptions as these could impact the estimate of future taxable profits. See Note 9 for further information.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

2023 price assumptions	2024	2025	2030	2040	2050
Brent oil ($/bbl)	70	70	70	63	50
Henry Hub gas ($/mmBtu)	4.00	4.00	4.00	4.00	4.00

2022 price assumptions	2023	2025	2030	2040	2050
Brent oil ($/bbl)	78	71	71	59	46
Henry Hub gas ($/mmBtu)	4.08	4.08	4.08	3.57	3.57

Global oil production increased by 2.2% in 2023. Strong US tight oil supply and non-OPEC+ supply more than offset OPEC+ pledged additional output reductions. Global oil demand continued its recovery, increasing by 2.4% in 2023. Chinese demand growth was unexpectedly strong making up 75% of total oil demand growth, with the rest coming from other non-OECD countries. Brent dropped by nearly $20 per barrel in 2023 as oil markets recovered from the shocks in 2022 and supply/demand was balanced. bp's long term view is for a more stable market in 2024 as the price responsiveness of shale activity, OPEC+ discipline and ample spare capacity limits the scope for large movements, even with the political tensions in the Middle East. bp's long-term assumption for oil prices is lower than the 2023 price average, based on the judgement that, in the long term, oil demand is likely to fall so that the price levels needed to encourage sufficient investment to meet declining global oil demand is also lower.

US gas prices in 2023 decreased around 60% compared to 2022, to $2.5 per mmbtu. Prices fell as gas production growth outpaced demand. Milder than normal winter weather and an extended outage at Freeport LNG left US gas storage stocks well above historic average levels at the end of winter 2022/2023. Henry Hub prices fell during the summer which incentivized coal-to-gas switching in the power sector, and hot weather in the third-quarter helped the market avoid storage containment issues. Meanwhile gas production continued to grow, reaching record levels by the end of 2023 despite a 20% decrease in gas rigs over the first half of the year. Growth was supported by strong associated gas production as well as pipeline de-bottlenecking. Finally, mild weather in the fourth-quarter further loosened balances and storage stocks exited the year 13% above five-year average levels. The level of US gas prices in 2023 is below bp's long term price assumption based on the judgment of the price level required to incentivize new production.

Oil and natural gas reserves

In addition to oil and natural gas prices, significant technical and commercial assessments are required to determine the group's estimated oil and natural gas reserves. Reserves estimates are regularly reviewed and updated. Factors such as the availability of geological and engineering data, reservoir performance data, acquisition and divestment activity and drilling of new wells all impact on the determination of the group's estimates of its oil and natural gas reserves. bp bases its reserves estimates on the requirement of reasonable certainty with rigorous technical and commercial assessments based on conventional industry practice and regulatory requirements.

Reserves assumptions for value-in-use tests reflect the reserves and resources that management currently intend to develop. The recoverable amount of oil and gas properties is determined using a combination of inputs including reserves, resources and production volumes. Risk factors may be applied to reserves and resources which do not meet the criteria to be treated as proved or probable.

Sensitivity analyses

Management considers discount rates, oil and natural gas prices and production to be the key sources of estimation uncertainty in determining the recoverable amount of upstream oil and gas assets. The sensitivity analyses below, in addition to covering the key sources of estimation uncertainty, also indicate how the energy transition, potential future carbon emissions costs for operational GHG emissions and/or reduced demand for oil and gas may further impact forecast revenue cash inflows to a greater extent than currently anticipated in the group's value-in-use estimates for oil and gas CGUs, if carbon emissions costs were to be implemented as a deduction against revenue cash flows. The analyses therefore represent a net revenue sensitivity.

A change in net revenue from upstream oil and gas properties can arise either due to changes in oil and natural gas prices, carbon emissions costs/ carbon prices, changes in oil and natural gas production, or a combination of these.

Management tested the impact of changes in net revenue cash flows in value-in-use impairment testing under the following sensitivity analyses: an increase in net revenues of 8% in all years up to 2040, and 25% in all remaining years to 2050; and a decrease in net revenues of 20% in all years up to 2030, 35% in all subsequent years to 2040 and 50% in all remaining years to 2050.

Net revenue reductions of this magnitude in isolation could indicatively lead to a reduction in the carrying amount of bp's currently held upstream oil and gas properties in the range of $16-17 billion which is approximately 23-24% of the net book value of property, plant and equipment as at 31 December 2023. If this net revenue reduction was due to reductions in prices in isolation, it reflects an indicative decrease in the carrying amount of using price assumptions for Brent oil trending broadly towards the bottom of the range of prices associated with the World Business Council for Sustainable Development (WBCSD) 'family' of scenarios considered to be consistent with limiting global average temperature to 1.5°C above pre-industrial levels. This 'family' of scenarios is also used in bp's TCFD scenario analysis (see page 55).

Net revenue increases of this magnitude in isolation could indicatively lead to an increase in the carrying amount of bp's currently held upstream oil and gas properties in the range of $2-3 billion which is approximately 3-4% of the net book value of property, plant and equipment as at 31 December 2023. This potential increase in the carrying amount would arise due to reversals of previously recognized impairments and represents approximately one third of the total impairment reversal capacity available at 31 December 2023. If this net revenue increase was due to increases in prices in isolation, it reflects an indicative increase in the carrying amount of using price assumptions for Brent oil trending broadly towards the top end until 2040, and then towards the mean average at 2050, of the range of prices associated with the WBCSD 'family' of scenarios considered to be consistent with limiting global average temperature to 1.5°C above pre-industrial levels. This 'family' of scenarios is also used in bp's TCFD scenario analysis.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

These sensitivity analyses do not, however, represent management's best estimate of any impairment charges or reversals that might be recognized as they do not fully incorporate consequential changes that may arise, such as changes in costs and business plans and phasing of development. For example, costs across the industry are more likely to decrease as oil and natural gas prices fall. The analyses also assume the impact of increases in carbon price on operational GHG emissions are fully absorbed as a decrease in net revenue (and vice versa) rather than reflecting how carbon prices or other carbon emissions costs may ultimately be incorporated by the market. The above sensitivity analyses therefore do not reflect a linear relationship between net revenue and value that can be extrapolated. The interdependency of these inputs and factors plus the diverse characteristics of the group's upstream oil and gas properties limits the practicability of estimating the probability or extent to which the overall recoverable amount is impacted by changes to the price assumptions or production volumes.

Management also tested the impact of a one percentage point change in the discount rate used for value-in-use impairment testing of upstream oil and gas properties. This level of change reflects past experience of a reasonable change in rate that could arise within the next financial year. If the discount rate was one percentage point higher across all tests performed, the net impairment loss recognized in 2023 would have been approximately $0.8 billion higher. If the discount rate was one percentage point lower, the net impairment loss recognized would have been approximately $0.9 billion lower.

Goodwill

Irrespective of whether there is any indication of impairment, bp is required to test annually for impairment of goodwill acquired in business combinations. The group carries goodwill of $12.5 billion on its balance sheet (2022 $12.0 billion), principally relating to the Atlantic Richfield, Burmah Castrol, Devon Energy and Reliance transactions. Of this, $7.0 billion relates to goodwill in the oil production & operations and gas & low carbon energy segments (2022 $7.2 billion), for which oil and gas price and production assumptions are key sources of estimation uncertainty. Sensitivities and additional information relating to impairment testing of goodwill in these segments are provided in Note 14.

Inventories

Inventories, other than inventories held for short-term trading purposes, are stated at the lower of cost and net realizable value. Cost is typically determined by the first-in first-out method and comprises direct purchase costs, cost of production, transportation and manufacturing expenses. Net realizable value is determined by reference to prices existing at the balance sheet date, adjusted where the sale of inventories after the reporting period gives evidence about their net realizable value at the end of the period.

Inventories held for short-term trading purposes are stated at fair value less costs to sell and any changes in fair value are recognized in the income statement.

Supplies are valued at the lower of cost on a weighted-average basis and net realizable value.

Leases

Agreements that convey the right to control the use of an identified asset for a period of time in exchange for consideration are accounted for as leases. The right to control is conveyed if bp has both the right to obtain substantially all of the economic benefits from, and the right to direct the use of, the identified asset throughout the period of use. An asset is identified if it is explicitly or implicitly specified by the agreement and any substitution rights held by the lessor over the asset are not considered substantive.

Agreements that convey the right to control the use of an intangible asset including rights to explore for or use hydrocarbons are not accounted for as leases. See material accounting policy information: intangible assets.

A lease liability is recognized on the balance sheet on the lease commencement date at the present value of future lease payments over the lease term. The discount rate applied is the rate implicit in the lease if readily determinable, otherwise an incremental borrowing rate is used. For the majority of the leases in the group, there is not sufficient information available to readily determine the rate implicit in the lease, and therefore the incremental borrowing rate is used. The incremental borrowing rate is determined based on factors such as the group's cost of borrowing, lessee legal entity credit risk, currency and lease term. The lease term is the non-cancellable period of a lease together with any periods covered by an extension option that bp is reasonably certain to exercise, or periods covered by a termination option that bp is reasonably certain not to exercise. The future lease payments included in the present value calculation are any fixed payments, payments that vary depending on an index or rate, payments due for the reasonably certain exercise of options and expected residual value guarantee payments. Repayments of principal are presented as financing cash flows and payments of interest are presented as operating cash flows.

Payments that vary based on factors other than an index or a rate such as usage, sales volumes or revenues are not included in the present value calculation and are recognized in the income statement and presented as operating cash flows. The lease liability is recognized on an amortized cost basis with interest expense recognized in the income statement over the lease term, except for where capitalized as exploration, appraisal or development expenditure.

The right-of-use asset is recognized on the balance sheet as property, plant and equipment at a value equivalent to the initial measurement of the lease liability adjusted for lease prepayments, lease incentives, initial direct costs and any restoration obligations. The right-of-use asset is depreciated typically on a straight-line basis over the lease term. The depreciation charge is recognized in the income statement except for where capitalized as exploration, appraisal or development expenditure. Right-of-use assets are assessed for impairment in line with the accounting policy for impairment of property, plant and equipment, intangible assets and goodwill.

Agreements may include both lease and non-lease components. Payments for lease and non-lease components are allocated on a relative stand-alone selling price basis except for leases of retail service stations where the group has elected not to separate non-lease payments from the calculation of the lease liability and right-of-use asset.

If the lease term at commencement of the agreement is less than 12 months, a lease liability and right-of-use asset are not recognized, and a lease expense is recognized in the income statement on a straight-line basis.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

If a significant event or change in circumstances, within the control of bp, arises that affects the reasonably certain lease term or there are changes to the lease payments, the present value of the lease liability is remeasured using the revised term and payments, with the right-of-use asset adjusted by an equivalent amount.

Modifications to a lease agreement beyond the original terms and conditions are accounted for as a re-measurement of the lease liability with a corresponding adjustment to the right-of-use asset. Any gain or loss on modification is recognized in the income statement. Modifications that increase the scope of the lease at a price commensurate with the stand-alone selling price are accounted for as a separate new lease.

The group recognizes the full lease liability, rather than its working interest share, for leases entered into on behalf of a joint operation if the group has the primary responsibility for making the lease payments. This may be the case if for example bp, as operator of the joint operation, is the sole signatory to the lease agreement. In such cases, bp's working interest share of the right-of-use asset is recognized if it is jointly controlled by the group and the other joint operators, and a receivable is recognized for the share of the asset transferred to the other joint operators. If bp is a non-operator, a payable to the operator is recognized if they have the primary responsibility for making the lease payments and bp has joint control over the right-of-use asset, otherwise no balances are recognized.

Financial assets

Financial assets are recognized initially at fair value, normally being the transaction price. In the case of financial assets not measured at fair value through profit or loss, directly attributable transaction costs are also included. The subsequent measurement of financial assets depends on their classification, as set out below. The group derecognizes financial assets when the contractual rights to the cash flows expire or the rights to receive cash flows have been transferred to a third party and either substantially all of the risks and rewards of the asset have been transferred, or substantially all the risks and rewards of the asset have neither been retained nor transferred but control of the asset has been transferred. This includes the derecognition of receivables for which discounting arrangements are entered into.

The group classifies its financial asset debt instruments as measured at amortized cost, fair value through other comprehensive income or fair value through profit or loss. The classification depends on the business model for managing the financial assets and the contractual cash flow characteristics of the financial asset.

Financial assets measured at amortized cost

Financial assets are classified as measured at amortized cost when they are held in a business model the objective of which is to collect contractual cash flows and the contractual cash flows represent solely payments of principal and interest. Such assets are carried at amortized cost using the effective interest method if the time value of money is significant. Gains and losses are recognized in profit or loss when the assets are derecognized or impaired and when interest income is recognized using the effective interest method. This category of financial assets includes trade and other receivables.

Financial assets measured at fair value through other comprehensive income

Financial assets are classified as measured at fair value through other comprehensive income when they are held in a business model the objective of which is both to collect contractual cash flows and sell the financial assets, and the contractual cash flows represent solely payments of principal and interest.

Financial assets measured at fair value through profit or loss

Financial assets are classified as measured at fair value through profit or loss when the asset does not meet the criteria to be measured at amortized cost or fair value through other comprehensive income. Such assets are carried on the balance sheet at fair value with gains or losses recognized in the income statement. Derivatives, other than those designated as effective hedging instruments, are included in this category.

Investments in equity instruments

Investments in equity instruments are subsequently measured at fair value through profit or loss unless an election is made on an instrument-by-instrument basis to recognize fair value gains and losses in other comprehensive income.

Derivatives designated as hedging instruments in an effective hedge

Derivatives designated as hedging instruments in an effective hedge are carried on the balance sheet at fair value. The treatment of gains and losses arising from revaluation is described below in the accounting policy for derivative financial instruments and hedging activities.

Cash equivalents

Cash equivalents are held for the purpose of meeting short-term cash commitments and are short-term highly liquid investments that are readily convertible to known amounts of cash, are subject to insignificant risk of changes in value and generally have a maturity of three months or less from the date of acquisition. Cash equivalents are classified as financial assets measured at amortized cost or, in the case of certain money market funds, fair value through profit or loss.

Impairment of financial assets measured at amortized cost

The group assesses on a forward-looking basis the expected credit losses associated with financial assets measured at amortized cost at each balance sheet date. Expected credit losses are measured based on the maximum contractual period over which the group is exposed to credit risk. As lifetime expected credit losses are recognized for trade receivables and the tenor of substantially all other in-scope financial assets is less than 12 months there is no significant difference between the measurement of 12-month and lifetime expected credit losses for the group. The measurement of expected credit losses is a function of the probability of default, loss given default and exposure at default. The expected credit loss is estimated as the difference between the asset's carrying amount and the present value of the future cash flows the group expects to receive discounted at the financial asset's original effective interest rate. The carrying amount of the asset is adjusted, with the amount of the impairment gain or loss recognized in the income statement.

A financial asset or group of financial assets classified as measured at amortized cost is considered to be credit-impaired if there is reasonable and supportable evidence that one or more events that have a detrimental impact on the estimated future cash flows of the financial asset (or group of financial assets) have occurred. Financial assets are written off where the group has no reasonable expectation of recovering amounts due.

Equity instruments

Instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangements. Instruments that cannot be settled in the group's own equity instruments and that include no contractual obligation to deliver cash or another financial asset or to exchange financial assets or financial liabilities with another entity that are potentially unfavourable are classified as equity. Equity instruments issued by the group are recognized at the proceeds received, net of directly attributable issue costs.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Financial liabilities

Financial liabilities are recognized when the group becomes party to the contractual provisions of the instrument. The group derecognizes financial liabilities when the obligation specified in the contract is discharged, cancelled or expired. The measurement of financial liabilities depends on their classification, as follows:

Financial liabilities measured at fair value through profit or loss

Financial liabilities that meet the definition of held for trading are classified as measured at fair value through profit or loss. Such liabilities are carried on the balance sheet at fair value with gains or losses recognized in the income statement. Derivatives, other than those designated as effective hedging instruments, are included in this category.

Derivatives designated as hedging instruments in an effective hedge

Derivatives designated as hedging instruments in an effective hedge are carried on the balance sheet at fair value. The treatment of gains and losses arising from revaluation is described below in the accounting policy for derivative financial instruments and hedging activities.

Financial liabilities measured at amortized cost

All other financial liabilities are initially recognized at fair value, net of directly attributable transaction costs. For interest-bearing loans and borrowings this is typically equivalent to the fair value of the proceeds received, net of issue costs associated with the borrowing.

After initial recognition, other financial liabilities are subsequently measured at amortized cost using the effective interest method. Amortized cost is calculated by taking into account any issue costs and any discount or premium on settlement. Gains and losses arising on the repurchase, settlement or cancellation of liabilities are recognized in interest and other income and finance costs respectively.

This category of financial liabilities includes trade and other payables and finance debt.

Significant judgement: supplier financing arrangements

The group's trade payables include some supplier arrangements that utilize letter of credit facilities. Judgement is required to assess the payables subject to these arrangements to determine whether they should continue to be classified as trade payables and give rise to operating cash flows or finance debt and financing cash flows. The criteria used in making this assessment include the payment terms for the amount due relative to terms commonly seen in the markets in which bp operates and whether the arrangements significantly change the nature of the liability. Liabilities subject to these arrangements with payment terms of up to approximately 60 days are generally considered to be trade payables and give rise to operating cash flows. At 31 December 2023, trade payables subject to these arrangements and this significant judgement included $10 billion (2022 $9.5 billion) payable to the providers of the letters of credit. See Note 29 - Liquidity risk for further information.

Financial guarantees

The group issues financial guarantee contracts to make specified payments to reimburse holders for losses incurred if certain associates, joint ventures or third-party entities fail to make payments when due in accordance with the original or modified terms of a debt instrument such as a loan. The liability for a financial guarantee contract is initially measured at fair value and subsequently measured at the higher of the contract's estimated expected credit loss and the amount initially recognized less, where appropriate, cumulative amortization.

Derivative financial instruments and hedging activities

The group uses derivative financial instruments to manage certain exposures to fluctuations in foreign currency exchange rates, interest rates and commodity prices, as well as for trading purposes. These derivative financial instruments are recognized initially at fair value on the date on which a derivative contract is entered into and subsequently remeasured at fair value. Derivatives are carried as assets when the fair value is positive and as liabilities when the fair value is negative.

Contracts to buy or sell a non-financial item (for example, oil, oil products, gas or power) that can be settled net in cash, with the exception of contracts that were entered into and continue to be held for the purpose of the receipt or delivery of a non-financial item in accordance with the group's expected purchase, sale or usage requirements, are accounted for as financial instruments. Gains or losses arising from changes in the fair value of derivatives that are not designated as effective hedging instruments are recognized in the income statement.

If, at inception of a contract, the valuation cannot be supported by observable market data, any gain or loss determined by the valuation methodology is not recognized in the income statement but is deferred on the balance sheet and is commonly known as a 'day-one gain or loss'. This deferred gain or loss is recognized in the income statement over the life of the contract until substantially all the remaining contractual cash flows can be valued using observable market data at which point any remaining deferred gain or loss is recognized in the income statement. Changes in valuation subsequent to the initial valuation at inception of a contract are recognized immediately in the income statement.

For the purpose of hedge accounting, hedges are classified as:

- Fair value hedges when hedging exposure to changes in the fair value of a recognized asset or liability.
- Cash flow hedges when hedging exposure to variability in cash flows that is attributable to either a particular risk associated with a recognized asset or liability or a highly probable forecast transaction.

Hedge relationships are formally designated and documented at inception, together with the risk management objective and strategy for undertaking the hedge. The documentation includes identification of the hedging instrument, the hedged item or transaction, the nature of the risk being hedged, the existence at inception of an economic relationship and subsequent measurement of the hedging instrument's effectiveness in offsetting the exposure to changes in the hedged item's fair value or cash flows attributable to the hedged risk, the hedge ratio and sources of hedge ineffectiveness. Hedges meeting the criteria for hedge accounting are accounted for as follows:

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Fair value hedges

The change in fair value of a hedging derivative is recognized in profit or loss. The change in the fair value of the hedged item attributable to the risk being hedged is recorded as part of the carrying value of the hedged item and is also recognized in profit or loss, where it offsets. The group applies fair value hedge accounting when hedging interest rate risk and certain currency risks on fixed rate finance debt.

Fair value hedge accounting is discontinued only when the hedging relationship or a part thereof ceases to meet the qualifying criteria. This includes when the risk management objective changes or when the hedging instrument is sold, terminated or exercised. The accumulated adjustment to the carrying amount of a hedged item at such time is then amortized prospectively to profit or loss as finance interest expense over the hedged item's remaining period to maturity.

Cash flow hedges

The effective portion of the gain or loss on a cash flow hedging instrument is reported in other comprehensive income, while the ineffective portion is recognized in profit or loss. Amounts reported in other comprehensive income are reclassified to the income statement when the hedged transaction affects profit or loss.

Where the hedged item is a highly probable forecast transaction that results in the recognition of a non-financial asset or liability, such as a forecast foreign currency transaction for the purchase of property, plant and equipment, the amounts recognized within other comprehensive income are transferred to the initial carrying amount of the non-financial asset or liability. Where the hedged item is an equity investment, the amounts recognized in other comprehensive income remain in the separate component of equity until the hedged cash flows affect profit or loss or when accounting under the equity method is discontinued. Where the hedged item is recognized directly in profit or loss, the amounts recognized in other comprehensive income are reclassified to production and manufacturing expenses or sales and other operating revenues as appropriate.

Cash flow hedge accounting is discontinued only when the hedging relationship or a part thereof ceases to meet the qualifying criteria. This includes when the designated hedged forecast transaction or part thereof is no longer considered to be highly probable to occur, or when the hedging instrument is sold, terminated or exercised without replacement or rollover. When cash flow hedge accounting is discontinued amounts previously recognized within other comprehensive income remain in equity until the forecast transaction occurs and are reclassified to profit or loss or transferred to the initial carrying amount of a non-financial asset or liability as above. If the forecast transaction is no longer expected to occur, amounts previously recognized within other comprehensive income will be immediately reclassified to profit or loss.

Costs of hedging

The foreign currency basis spread of cross-currency interest rate swaps are excluded from hedge designations and accounted for as costs of hedging. Changes in fair value of the foreign currency basis spread are recognized in other comprehensive income to the extent that they relate to the hedged item.

For time-period related hedged items, the amount recognized in other comprehensive income is amortized to profit or loss on a straight line basis over the term of the hedging relationship.

Fair value measurement

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. The group categorizes assets and liabilities measured at fair value into one of three levels depending on the ability to observe inputs employed in their measurement. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are inputs that are observable, either directly or indirectly, other than quoted prices included within level 1 for the asset or liability. Level 3 inputs are unobservable inputs for the asset or liability reflecting significant modifications to observable related market data or bp's assumptions about pricing by market participants.

Significant estimate and judgement: derivative financial instruments

In some cases the fair values of derivatives are estimated using internal models due to the absence of quoted prices or other observable, market-corroborated data. This primarily applies to the group's longer-term derivative contracts. The majority of these contracts are valued using models with inputs that include price curves for each of the different products that are built up from available active market pricing data (including volatility and correlation) and modelled using the maximum available external information. Additionally, where limited data exists for certain products, prices are determined using historical and long-term pricing relationships. The use of alternative assumptions or valuation methodologies may result in significantly different values for these derivatives. A reasonably possible change in the price assumptions used in the models relating to index price would not have a material impact on net assets and the Group income statement primarily as a result of offsetting movements between derivative assets and liabilities.

In some cases, judgement is required to determine whether contracts to buy or sell commodities meet the definition of a derivative or to determine appropriate presentation and classification of transactions in certain cases. In particular, contracts to buy and sell LNG are not considered to meet the definition as they are not considered capable of being net settled due to a lack of liquidity in the LNG market and the inability or lack of history of net settlement and are accounted for on an accruals basis, rather than as a derivative. Under IFRS, bp fair values the derivative financial instruments used to risk-manage the LNG contracts themselves, resulting in a measurement mismatch.

For more information, including the carrying amounts of level 3 derivatives, see Note 30.

Offsetting of financial assets and liabilities

Financial assets and liabilities are presented gross in the balance sheet unless both of the following criteria are met: the group currently has a legally enforceable right to set off the recognized amounts; and the group intends to either settle on a net basis or realize the asset and settle the liability simultaneously. A right of set off is the group's legal right to settle an amount payable to a creditor by applying against it an amount receivable from the same counterparty. The relevant legal jurisdiction and laws applicable to the relationships between the parties are considered when assessing whether a current legally enforceable right to set off exists.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Provisions and contingencies

Provisions are recognized when the group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. Where appropriate, the future cash flow estimates are adjusted to reflect risks specific to the liability.

If the effect of the time value of money is material, provisions are determined by discounting the expected future cash flows at a pre-tax risk-free rate that reflects current market assessments of the time value of money. Where discounting is used, the increase in the provision due to the passage of time is recognized within finance costs. Provisions are discounted using a nominal discount rate of 4% (2022 3.5%).

Provisions are split between amounts expected to be settled within 12 months of the balance sheet date (current) and amounts expected to be settled later (non-current).

Contingent liabilities are possible obligations whose existence will only be confirmed by future events not wholly within the control of the group, or present obligations where it is not probable that an outflow of resources will be required or the amount of the obligation cannot be measured with sufficient reliability. Contingent liabilities are not recognized in the consolidated financial statements but are disclosed, if material, unless the possibility of an outflow of economic resources is considered remote.

Decommissioning

Liabilities for decommissioning costs are recognized when the group has an obligation to plug and abandon a well, dismantle and remove a facility or an item of plant and to restore the site on which it is located, and when a reliable estimate of that liability can be made. Where an obligation exists for a new facility or item of plant, such as oil and natural gas production or transportation facilities, this liability will be recognized on construction or installation. Similarly, where an obligation exists for a well, this liability is recognized when it is drilled. An obligation for decommissioning may also crystallize during the period of operation of a well, facility or item of plant through a change in legislation or through a decision to terminate operations; an obligation may also arise in cases where an asset has been sold but the subsequent owner is no longer able to fulfil its decommissioning obligations, for example due to bankruptcy. The amount recognized is the present value of the estimated future expenditure determined in accordance with local conditions and requirements. The provision for the costs of decommissioning wells, production facilities and pipelines at the end of their economic lives is estimated using existing technology, at future prices, depending on the expected timing of the activity, and discounted using a nominal discount rate.

An amount equivalent to the decommissioning provision is recognized as part of the corresponding intangible asset (in the case of an exploration or appraisal well) or property, plant and equipment. The decommissioning portion of the property, plant and equipment is subsequently depreciated at the same rate as the rest of the asset. Other than the unwinding of discount on or utilization of the provision, any change in the present value of the estimated expenditure is reflected as an adjustment to the provision and the corresponding asset where that asset is generating or is expected to generate future economic benefits.

Environmental expenditures and liabilities

Environmental expenditures that are required in order for the group to obtain future economic benefits from its assets are capitalized as part of those assets. Expenditures that relate to an existing condition caused by past operations that do not contribute to future earnings are expensed.

Liabilities for environmental costs are recognized when a clean-up is probable and the associated costs can be reliably estimated. Generally, the timing of recognition of these provisions coincides with the commitment to a formal plan of action or, if earlier, on divestment or on closure of inactive sites.

The amount recognized is the best estimate of the expenditure required to settle the obligation. Provisions for environmental liabilities have been estimated using existing technology, at future prices and discounted using a nominal discount rate.

Emissions

Liabilities for emissions are recognized when the cumulative volumes of gases emitted by the group at the end of the reporting period exceed the allowances granted free of charge held for own use or a set baseline for emissions. The provision is measured at the best estimate of the expenditure required to settle the present obligation at the balance sheet date. It is based on the excess of actual emissions over the free allowances held or set baseline in tonnes (or other appropriate quantity) and is valued at the actual cost of any allowances that have been purchased and held for own use on a first-in-first-out (FIFO) basis, and, if insufficient allowances are held, for the remaining requirement on the basis of the spot market price of allowances at the balance sheet date. The majority of these provisions are typically settled within 12 months of the balance sheet date however certain schemes may have longer compliance periods. The cost of allowances purchased to cover a shortfall is recognized separately on the balance sheet as an intangible asset unless the emission allowances acquired or generated by the group are risk-managed by the trading and shipping function, then they are recognized on the balance sheet as inventory.

Restructuring provisions

Restructuring provisions are recognized where a detailed formal plan exists, and a valid expectation of risk of redundancy has been made to those affected but where the specific outcomes remain uncertain. Where formal redundancy offers have been made, the obligations for those amounts are reported as payables and, if not, as provisions if unpaid at the year-end.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Significant judgements and estimates: provisions

The group holds provisions for the future decommissioning of oil and natural gas production facilities and pipelines at the end of their economic lives. The largest decommissioning obligations facing bp relate to the plugging and abandonment of wells and the removal and disposal of oil and natural gas platforms and pipelines around the world. Most of these decommissioning events are many years in the future and the precise requirements that will have to be met when the removal event occurs are uncertain. Decommissioning technologies and costs are constantly changing, as are political, environmental, safety and public expectations. The timing and amounts of future cash flows are subject to significant uncertainty and estimation is required in determining the amounts of provisions to be recognized. Any changes in the expected future costs are reflected in both the provision and, where still recognized, the asset.

If oil and natural gas production facilities and pipelines are sold to third parties, judgement is required to assess whether the new owner will be unable to meet their decommissioning obligations, whether bp would then be responsible for decommissioning, and if so the extent of that responsibility. This typically requires assessment of the local legal requirements and the financial standing of the owner. If the standing deteriorates significantly, for example, bankruptcy of the owner, a provision may be required. The group has assessed that $0.6 billion of decommissioning provisions should be recognized as at 31 December 2023 (2022 $0.8 billion) for assets previously sold to third parties where the sale transferred the decommissioning obligation to the new owner. See Note 33 for further information.

Decommissioning provisions associated with downstream refineries are generally not recognized, as the potential obligations cannot be measured, given their indeterminate settlement dates. Obligations may arise if refineries cease manufacturing operations and any such obligations would be recognized in the period when sufficient information becomes available to determine potential settlement dates. See Note 33 for further information.

The group performs periodic reviews of its downstream refineries for any changes in facts and circumstances including those relating to the energy transition, that might require the recognition of a decommissioning provision. Portfolio strength and flexibility are such that the point of cessation of manufacturing at the group's operating refineries is not yet expected within a determinate time period, as existing property plant and equipment is expected to be renewed or replaced.

The provision for environmental liabilities is estimated based on current legal and constructive requirements, technology, price levels and expected plans for remediation. Actual costs and cash outflows can differ from current estimates because of changes in laws and regulations, public expectations, prices, discovery and analysis of site conditions and changes in clean-up technology.

The timing and amount of future expenditures relating to decommissioning and environmental liabilities are reviewed annually. The interest rate used in discounting the cash flows is reviewed quarterly. The nominal interest rate used to determine the balance sheet obligations at the end of 2023 was 4% (2022 3.5%), which was based on long-dated US government bonds. The weighted average period over which decommissioning and environmental costs are generally expected to be incurred is estimated to be approximately 17 years (2022 17 years) and 6 years (2022 6 years) respectively. Costs at future prices are typically determined by applying an inflation rate of 1.5% (2022 1.5%) to decommissioning costs and 2% (2022 2%) for all other provisions. A lower rate is typically applied to decommissioning as certain costs are expected to remain fixed at current or past prices.

The estimated phasing of undiscounted cash flows in real terms for upstream decommissioning is approximately $5.5 billion (2022 $5.6 billion) within the next 10 years, $5.8 billion (2022 $5.3 billion) in 10 to 20 years and the remainder of approximately $6.6 billion (2022 $6.0 billion) after 20 years. The timing and amount of decommissioning cash flows are inherently uncertain and therefore the phasing is management's current best estimate but may not be what will ultimately occur.

Further information about the group's provisions is provided in Note 23. Changes in assumptions in relation to the group's provisions could result in a material change in their carrying amounts within the next financial year. A 1.0 percentage point increase in the nominal discount rate applied could decrease the group's provision balances by approximately $1.6 billion (2022 $1.8 billion). The pre-tax impact on the group income statement would be a credit of approximately $0.4 billion (2022 $0.5 billion). This level of change reflects past experience of a reasonable change in rate that could arise within the next financial year.

The discounting impact on the group's decommissioning provisions for oil and gas properties in the oil productions & operations and gas & low carbon energy segments of a two-year change in the timing of expected future decommissioning expenditures is approximately $0.6 billion (2022 $0.5 billion). Management currently does not consider a change of greater than two years to be reasonably possible in the next financial year and therefore the timing of upstream decommissioning expenditure is not a key source of estimation uncertainty.

If all expected future decommissioning expenditures were 10% higher, then these decommissioning provisions would increase by approximately $1.1 billion (2022 $1.2 billion) and a pre-tax charge of approximately $0.2 billion (2022 $0.3 billion) would be recognized. A one percentage point increase in the inflation rate applied to upstream decommissioning costs to determine the nominal cash flows could increase the decommissioning provision by approximately $1.9 billion (2022 $2.0 billion) with a pre-tax charge of approximately $0.5 billion (2022 $0.5 billion).

As described in Note 33, the group is subject to claims and actions for which no provisions have been recognized. The facts and circumstances relating to particular cases are evaluated regularly in determining whether a provision relating to a specific litigation should be recognized or revised. Accordingly, significant management judgement relating to provisions and contingent liabilities is required, since the outcome of litigation is difficult to predict.

Employee benefits

Wages, salaries, bonuses, social security contributions, paid annual leave and sick leave are accrued in the period in which the associated services are rendered by employees of the group. Deferred bonus arrangements that have a vesting date more than 12 months after the balance sheet date are valued on an actuarial basis using the projected unit credit method and amortized on a straight-line basis over the service period until the award vests. The material accounting policy information for pensions and other post-retirement benefits are described below.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Pensions and other post-retirement benefits

The cost of providing benefits under the group's defined benefit plans is determined separately for each plan using the projected unit credit method, which attributes entitlement to benefits to the current period to determine current service cost and to the current and prior periods to determine the present value of the defined benefit obligation. Past service costs, resulting from either a plan amendment or a curtailment (a reduction in future obligations as a result of a material reduction in the plan membership), are recognized immediately when the company becomes committed to a change.

Net interest expense relating to pensions and other post-retirement benefits, which is recognized in the income statement, represents the net change in present value of plan obligations and the value of plan assets resulting from the passage of time, and is determined by applying the discount rate to the present value of the benefit obligation at the start of the year, and to the fair value of plan assets at the start of the year, taking into account expected changes in the obligation or plan assets during the year.

Remeasurements of the defined benefit liability and asset, comprising actuarial gains and losses, and the return on plan assets (excluding amounts included in net interest described above) are recognized within other comprehensive income in the period in which they occur and are not subsequently reclassified to profit and loss.

The defined benefit pension plan surplus or deficit recognized on the balance sheet for each plan comprises the difference between the present value of the defined benefit obligation (using a discount rate based on high quality corporate bonds) and the fair value of plan assets out of which the obligations are to be settled directly. Fair value is based on market price information and, in the case of quoted securities, is the published bid price. Defined benefit pension plan surpluses are only recognized to the extent they are recoverable, either by way of a refund from the plan or reductions in future contributions to the plan.

Contributions to defined contribution plans are recognized in the income statement in the period in which they become payable.

Significant estimate: pensions and other post-retirement benefits

Accounting for defined benefit pensions and other post-retirement benefits involves making significant estimates when measuring the group's pension plan surpluses and deficits. These estimates require assumptions to be made about many uncertainties.

Pensions and other post-retirement benefit assumptions are reviewed by management at the end of each year. These assumptions are used to determine the projected benefit obligation at the year end and hence the surpluses and deficits recorded on the group's balance sheet and pension and other post-retirement benefit expense for the following year.

The assumptions that are the most significant to the amounts reported are the discount rate, inflation rate and mortality levels. Assumptions about these variables are based on the environment in each country. The assumptions used vary from year to year, with resultant effects on future net income and net assets. Changes to some of these assumptions, in particular the discount rate and inflation rate, could result in material changes to the carrying amounts of the group's pension and other post-retirement benefit obligations within the next financial year, in particular for the UK, US and Eurozone plans. Any differences between these assumptions and the actual outcome will also affect future net income and net assets.

The values ascribed to these assumptions and a sensitivity analysis of the impact of changes in the assumptions on the benefit expense and obligation used are provided in Note 24.

Income taxes

Income tax expense represents the sum of current tax and deferred tax.

Income tax is recognized in the income statement, except to the extent that it relates to items recognized in other comprehensive income or directly in equity, in which case the related tax is recognized in other comprehensive income or directly in equity.

Current tax is based on the taxable profit for the period. Taxable profit differs from net profit as reported in the income statement because it is determined in accordance with the rules established by the applicable taxation authorities. It therefore excludes items of income or expense that are taxable or deductible in other periods as well as items that are never taxable or deductible. The group's liability for current tax is calculated using tax rates and laws that have been enacted or substantively enacted by the balance sheet date.

Deferred tax is provided, using the liability method, on temporary differences at the balance sheet date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes. Deferred tax liabilities are recognized for all taxable temporary differences except:

- Where the deferred tax liability arises on the initial recognition of goodwill.
- Where the deferred tax liability arises on the initial recognition of an asset or liability in a transaction that is not a business combination, at the time of the transaction, affects neither accounting profit nor taxable profit or loss and, at the time of the transaction, does not give rise to equal taxable and deductible temporary differences.
- In respect of taxable temporary differences associated with investments in subsidiaries and associates and interests in joint arrangements, where the group is able to control the timing of the reversal of the temporary differences and it is probable that the temporary differences will not reverse in the foreseeable future.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Deferred tax assets are recognized for deductible temporary differences, carry-forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences and the carry-forward of unused tax credits and unused tax losses can be utilized, except where the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination, at the time of the transaction, affects neither accounting profit nor taxable profit or loss and, at the time of the transaction, does not give rise to equal taxable and deductive temporary differences.

In respect of deductible temporary differences associated with investments in subsidiaries and associates and interests in joint arrangements, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized.

The carrying amount of deferred tax assets is reviewed at each balance sheet date and reduced to the extent that it is no longer probable or increased to the extent that it is probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the balance sheet date. Deferred tax assets and liabilities are not discounted.

Deferred tax assets and liabilities are offset only when there is a legally enforceable right to set off current tax assets against current tax liabilities and when the deferred tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the current tax assets and liabilities on a net basis or to realize the assets and settle the liabilities simultaneously.

Where tax treatments are uncertain, if it is considered probable that a taxation authority will accept the group's proposed tax treatment, income taxes are recognized consistent with the group's income tax filings. If it is not considered probable, the uncertainty is reflected within the carrying amount of the applicable tax asset or liability using either the most likely amount or an expected value, depending on which method better predicts the resolution of the uncertainty.

The computation of the group's income tax expense and liability involves the interpretation of applicable tax laws and regulations in many jurisdictions throughout the world. The resolution of tax positions taken by the group, through negotiations with relevant tax authorities or through litigation, can take several years to complete and in some cases it is difficult to predict the ultimate outcome. Therefore, judgement is required to determine whether provisions for income taxes are required and, if so, estimation is required of the amounts that could be payable.

In addition, the group has carry-forward tax losses and tax credits in certain taxing jurisdictions that are available to offset against future taxable profit. However, deferred tax assets are recognized only to the extent that it is probable that taxable profit will be available against which the unused tax losses or tax credits can be utilized. Management judgement is exercised in assessing whether this is the case and estimates are required to be made of the amount of future taxable profits that will be available. Such judgements are inherently impacted by estimates affecting future taxable profits such as oil and natural gas prices and decommissioning expenditure, see 'Significant judgements and estimates: recoverability of asset carrying values and provisions'.

In May 2023, the IASB issued International Tax Reform – Pillar Two Model Rules - Amendments to IAS 12 Income Taxes to clarify the application of IAS 12 to tax legislation enacted or substantively enacted to implement Pillar Two of the Organisation for Economic Co-operation and Development's Base Erosion and Profit Shifting project, which aims to address the tax challenges arising from the digitalisation of the economy. The amendments include a mandatory temporary exception from accounting for deferred tax on such tax law. In July 2023, the UK government enacted legislation to implement the Pillar Two rules. The legislation is effective for bp from 1 January 2024 and includes an income inclusion rule and a domestic minimum tax, which together are designed to ensure a minimum effective tax rate of 15% in each country in which the group operates. Similar legislation is being enacted by other governments around the world. In line with the amendments to IAS 12, the exception from accounting for deferred tax for the Pillar Two rules has been applied and there are no impacts on the consolidated financial statements for 2023. Based on an assessment of historic data and forecasts for the year ending 31 December 2024, the Group does not expect a material exposure to Pillar Two income taxes for the year ending 31 December 2024.

Significant judgement and estimate: taxation

The value of deferred tax assets and liabilities is an area involving inherent uncertainty and estimation and balances are therefore subject to risk of material change as a result of underlying assumptions and judgements used, in particular the forecast of future profitability used to determine the recoverability of deferred tax, for example future oil and gas prices, see 'Significant judgement and estimates - Recoverability of asset carrying values'. It is impracticable to disclose the extent of the possible effects of profitability assumptions on the group's deferred tax assets. It is reasonably possible that to the extent that actual outcomes differ from management's estimates, material income tax charges or credits, and material changes in current and deferred tax assets or liabilities, may arise within the next financial year and in future periods.

Judgement is required when determining whether a particular tax is an income tax or another type of tax (for example, a production tax). The attributes of the tax, including whether it is calculated on profits or another measure such as production or revenues, the extent of deductibility of costs and the interaction with existing income taxes, are considered in determining the classification of the tax. Accounting for deferred tax is applied to income taxes as described above but is not applied to other types of taxes; rather such taxes are recognized in the income statement in accordance with the applicable accounting policy such as Provisions and contingencies.

This judgement is considered significant only in relation to the group's taxes payable under the fiscal terms of bp's onshore concession in Abu Dhabi. These are principally reported as income taxes rather than as production taxes.

For more information see Note 9 and Note 33.

Customs duties and sales taxes

Customs duties and sales taxes that are passed on or charged to customers are excluded from revenues and expenses. Assets and liabilities are recognized net of the amount of customs duties or sales tax except:

- Customs duties or sales taxes incurred on the purchase of goods and services which are not recoverable from the taxation authority are recognized as part of the cost of acquisition of the asset.
- Receivables and payables are stated with the amount of customs duty or sales tax included.

The net amount of sales tax recoverable from, or payable to, the taxation authority is included within receivables or payables in the balance sheet.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Own equity instruments – treasury shares

The group's holdings in its own equity instruments are shown as deductions from shareholders' equity. Treasury shares represent bp shares repurchased and available for specific and limited purposes. For accounting purposes, shares held in Employee Share Ownership Plans (ESOPs) to meet the future requirements of the employee share-based payment plans are treated in the same manner as treasury shares and are, therefore, included in the consolidated financial statements as treasury shares. The cost of treasury shares subsequently sold or reissued is calculated on a weighted-average basis. Consideration, if any, received for the sale of such shares is also recognized in equity. No gain or loss is recognized in the income statement on the purchase, sale, issue or cancellation of equity shares. Shares repurchased under the share buy-back programme which are immediately cancelled are not shown as treasury shares, but are shown as a deduction from the profit and loss account reserve in the group statement of changes in equity.

Revenue and other income

Revenue from contracts with customers is recognized when or as the group satisfies a performance obligation by transferring control of a promised good or service to a customer. The transfer of control of oil, natural gas, natural gas liquids, LNG, petroleum and chemical products, and other items usually coincides with title passing to the customer and the customer taking physical possession. The group principally satisfies its performance obligations at a point in time; the amounts of revenue recognized relating to performance obligations satisfied over time are not significant.

When, or as, a performance obligation is satisfied, the group recognizes as revenue the amount of the transaction price that is allocated to that performance obligation. The transaction price is the amount of consideration to which the group expects to be entitled. The transaction price is allocated to the performance obligations in the contract based on standalone selling prices of the goods or services promised.

Contracts for the sale of commodities are typically priced by reference to quoted prices. Revenue from term commodity contracts is recognized based on the contractual pricing provisions for each delivery. Certain of these contracts have pricing terms based on prices at a point in time after delivery has been made. Revenue from such contracts is initially recognized based on relevant prices at the time of delivery and subsequently adjusted as appropriate. All revenue from these contracts, both that recognized at the time of delivery and that from post-delivery price adjustments, is disclosed as revenue from contracts with customers.

Sales and purchase of commodities accounted for under IFRS 15 are presented on a gross basis in Revenue from contracts with customers and Purchases respectively. Physically settled derivatives which represent trading or optimization activities are presented net alongside financially settled derivative contracts in Other operating revenues within Sales and other operating income. Certain physically settled sale and purchase derivative contracts which are not part of trading and optimization activities are presented gross within Other operating revenues and Purchases respectively. Changes in the fair value of derivative assets and liabilities prior to physical delivery are also classified as other operating revenues.

Physical exchanges with counterparties in the same line of business in order to facilitate sales to customers are reported net, as are sales and purchases made with a common counterparty, as part of an arrangement similar to a physical exchange.

Where the group acts as agent on behalf of a third party to procure or market energy commodities, any associated fee income is recognized but no purchase or sale is recorded.

Interest income is recognized as the interest accrues (using the effective interest rate, that is, the rate that exactly discounts estimated future cash receipts through the expected life of the financial instrument to the net carrying amount of the financial asset).

Dividend income from investments is recognized when the shareholders' right to receive the payment is established.

Contract asset and contract liability balances are included within amounts presented for trade receivables and other payables respectively.

Finance costs

Finance costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use, are added to the cost of those assets until such time as the assets are substantially ready for their intended use. All other finance costs are recognized in the income statement in the period in which they are incurred.

Updates to material accounting policy information

Impact of new International Financial Reporting Standards

There are no new or amended standards or interpretations adopted from 1 January 2023 onwards, including the amendments to IAS 12 'Income Taxes' as described on page 186 and IFRS 17 'Insurance Contracts,' that have a significant impact on the consolidated financial statements for 2023. Further, there are no new or amended standards not yet adopted that are expected to have a material impact.

2. Non-current assets held for sale

The carrying amount of assets classified as held for sale at 31 December 2023 is $151 million (2022 $1,242 million), with associated liabilities of $62 million (2022 $321 million).

customers & products

On 16 November 2023, bp entered into an agreement to sell its Türkiye ground fuels business to Petrol Ofisi. This includes the group's interest in three joint venture terminals in Türkiye. Completion of the sale is subject to regulatory approvals. The carrying amount of assets classified as held for sale at 31 December 2023 is $151 million, with associated liabilities of $62 million. Cumulative foreign exchange losses within reserves of approximately $850 million are expected to be recycled to the group income statement at completion.

Transactions that have been classified as held for sale during 2023, but were completed by 31 December 2023, are described below.

gas & low carbon energy

The assets held for sale balance at 31 December 2022 included assets of $511 million and associated liabilities of $48 million relating to the agreement to sell bp's upstream business in Algeria to Eni. The transaction closed on 28 February 2023.

customers & products

In addition, at 31 December 2022 assets of $731 million and associated liabilities of $273 million were classified as held for sale relating to the sale of bp's 50% interest in the bp-Husky Toledo refinery in Ohio US, to Cenovus Energy, its partner in the facility. The sale completed on 28 February 2023.

The total assets and liabilities held for sale at 31 December 2023 and 2022, which for 2023 are all in the customers & products segments and for 2022 in the gas & low carbon energy and customers & products segments, are set out in the table below.

		$ million
	2023	2022
Property, plant and equipment	**49**	693
Goodwill	**—**	58
Intangible assets	**3**	—
Loans	**1**	—
Inventories	**—**	255
Cash	**—**	35
Trade and other receivables	**98**	201
Assets classified as held for sale	**151**	1,242
Trade and other payables	**(1)**	(256)
Lease liabilities	**(40)**	(14)
Provisions	**(10)**	(36)
Deferred tax liabilities	**—**	(15)
Defined benefit pension plan and other post-retirement benefit plan deficits	**(11)**	—
Liabilities directly associated with assets classified as held for sale	**(62)**	(321)

3. Business combinations and other significant transactions

Business combinations

2023

The group undertook a number of business combinations during 2023. Total consideration paid in cash amounted to $1,282 million (2022 $3,671 million), offset by cash acquired of $484 million (2022 $141 million).

The fair value of the net assets (including goodwill) recognized from business combinations in the full year, inclusive of measurement period adjustments for business combinations in previous periods, was $1,228 million (2022 $4,121 million). This principally related to the acquisition of TravelCenters of America.

2022

Archaea Energy

On 28 December 2022, bp acquired 100% of the issued common stock of Archaea Energy Inc. a leading producer of renewable natural gas (RNG) in the US, that was listed on the New York Stock Exchange.

The total cash consideration for the transaction, all paid at completion, was $3,137 million.

The transaction was accounted for as a business combination using the acquisition method. As the transaction completed shortly prior to the end of the reporting period, the acquisition-date fair values of the assets and liabilities acquired reported in 2022 were provisional. The final and provisional fair values of the identifiable assets and liabilities acquired, as at the date of acquisition are shown in the table below. The measurement period adjustments between the provisional and final values were recognized in 2023 as the impact on the comparative period was not material. The intangible assets recognized are primarily the biogas rights agreements Archaea Energy has with landfill owners. The goodwill recognized reflects the part of the project development pipeline that did not qualify for separate recognition at the acquisition date and goodwill arising from recognition of deferred tax liabilities on fair value uplifts. The goodwill balance is not expected to be deductible for tax purposes.

The transaction included a step acquisition of the Mavrix LLC joint venture, which bp and Archaea Energy each held a 50% interest in prior to this transaction. The final fair value of bp's interest in Mavrix LLC immediately before the acquisition date was $303 million and the gain recognized in 'Interest and other income', initially in 2022 and revised in 2023, as a result of remeasuring this interest to fair value was $196 million.

		$ million
	Provisional	**Final**
Assets		
Property plant and equipment	885	929
Goodwill	409	707
Intangible assets	3,475	3,178
Investments in equity-accounted entities	917	883
Inventory	42	31
Trade and other receivables	67	47
Cash and cash equivalents	107	96
Liabilities		
Trade and other payables	(1,032)	(1,145)
Finance debt	(1,044)	(1,044)
Deferred tax liabilities	(293)	(214)
Provisions	(16)	(21)
Non-controlling interest	(7)	(7)
Total consideration	3,510	3,440
Of which:		
Cash	3,137	3,137
Fair value of previously held interest in Mavrix LLC	373	303

4. Disposals and impairment

The following amounts were recognized in the income statement in respect of disposals and impairments.

			$ million
	2023	2022	2021
Gains on sale of businesses and fixed assets			
gas & low carbon energy	**19**	45	1,034
oil production & operations	**297**	3,446	869
customers & products	**44**	374	(52)
other businesses & corporate	**9**	1	25
	369	3,866	1,876

			$ million
	2023	2022	2021
Losses on sale of businesses and fixed assets, and closures			
gas & low carbon energy	**9**	—	1
oil production & operations	**5**	921	86
customers & products	**143**	177	142
other businesses & corporate	**(1)**	11,083	1
	156	12,181	230
Impairment losses			
gas & low carbon energy	**2,213**	745	834
oil production & operations	**1,840**	4,480	1,617
customers & products	**1,614**	1,874	962
other businesses & corporate	**80**	13,536	63
	5,747	20,635	3,476
Impairment reversals			
gas & low carbon energy	**(1)**	(1,333)	(2,338)
oil production & operations	**(26)**	(893)	(2,479)
customers & products	**—**	(68)	(7)
other businesses & corporate	**(19)**	—	(3)
	(46)	(2,294)	(4,827)
Impairment and losses on sale of businesses and fixed assets, and closures	**5,857**	30,522	(1,121)

Disposals

Disposal proceeds and principal gains and losses on disposals by segment are described below.

			$ million
	2023	2022	2021
Proceeds from disposals of fixed assets	**133**	709	1,145
Proceeds from disposals of businesses, net of cash disposed	**1,193**	1,841	5,812
	1,326	2,550	6,957
By business			
gas & low carbon energy	**536**	22	2,425
oil production & operations	**333**	1,935	3,022
customers & products	**436**	592	1,050
other businesses & corporate	**21**	1	460
	1,326	2,550	6,957

Proceeds from disposals of businesses in 2023 includes $477 million relating to the sale of the upstream business in Algeria to Eni and $351 million relating to the disposal of the bp-Husky Toledo refinery to Cenovus Energy. At 31 December 2023, deferred consideration relating to disposals amounted to $141 million receivable within one year (2022 $191 million and 2021 $205 million) and $217 million receivable after one year (2022 $194 million and 2021 $823 million). The amounts of deferred consideration are reported within Trade and other receivables in Other receivables in the group balance sheet. In addition, contingent consideration receivable relating to disposals amounted to $1,694 million at 31 December 2023 (2022 $1,896 million and 2021 $1,917 million). The contingent consideration at 31 December 2023 relates to the prior period disposals of our Alaskan business and certain assets in the North Sea and the disposal of our 50% interest in the Sunrise oil sands project in Canada. These amounts of contingent consideration are reported within Other investments on the group balance sheet - see Note 18 for further information.

Gains and losses on sale of businesses and fixed assets, and closures

gas & low carbon energy

In 2021 gains on disposal of businesses and fixed assets were principally related to a $1,031 million gain on disposal of a 20% participating interest in Block 61 in Oman.

4. Disposals and impairment – continued

oil production & operations

In 2023 gains principally related to prior period disposals in the US and Canada.

In 2022 gains principally related to a gain of $1,932 million arising from the contribution of bp's Angolan business to Azule Energy, a gain of $904 million related to the deemed disposal of 12% of the group's interest in Aker BP, an associate of bp, following completion of Aker BP's acquisition of Lundin Energy, and $349 million in relation to the disposal of the group's interest in the Rumaila field in Iraq to Basra Energy Company, an associate of bp.

Losses included $479 million of accumulated exchange losses previously charged to equity and taken to the income statement as a result of the decision to exit bp's other businesses with Rosneft within Russia.

In 2021 gains principally resulted from adjustments to disposals in prior periods. Gains include $171 million from the disposal of a 2.1% interest in Aker BP in the North Sea, $100 million from the disposal of certain exploration assets in Brazil, and $502 million fair value movements in relation to deferred and contingent consideration in relation to prior disposals in Alaska and the North Sea.

customers & products

In 2022, gains principally relate to a gain of $268 million arising from the divestment of our Swiss retail assets.

other businesses and corporate

In 2022 the losses on disposal of businesses and fixed assets was $11,082 million in respect of the decision to exit our holding in Rosneft which resulted in the reclassification to the income statement of $10,372 million of accumulated exchange losses, a cash flow hedge reserve of $651 million relating to the original acquisition of Rosneft shares and bp's cumulative share of Rosneft's other comprehensive income of $59 million which were all previously charged to equity.

Summarized financial information relating to the sale of businesses is shown in the table below.

The principal transactions categorized as a business disposal in 2023 were the sale of the upstream business in Algeria to Eni and the disposal of the bp-Husky Toledo refinery to Cenovus Energy.

The principal transactions categorized as a business disposal in 2022 were the formation of Azule Energy, the formation of Basra Energy Company and the sale of our 50% interest in the Sunrise oil sands project in Canada.

The principal transaction categorized as a business disposal in 2021 was the sale of a 20% participating interest from bp's 60% participating interest in Block 61 in Oman.

			$ million
	2023	2022	2021
Non-current assets	**1,145**	3,681	1,620
Current assets	**557**	2,972	69
Non-current liabilities	**(60)**	(1,869)	(287)
Current liabilities	**(454)**	(1,074)	(3)
Total carrying amount of net assets disposed	**1,188**	3,710	1,399
Recycling of foreign exchange on disposal	**—**	(26)	35
Costs on disposal	**57**	488	(5)
	1,245	4,172	1,429
Gains (losses) on sale of businesses	**158**	6,219	1,632
Total consideration	**1,403**	10,391	3,061
Non-cash consideration	**(51)**	(8,999)	(108)
Consideration received (receivable)	**(159)**	449	2,859
Proceeds from the sale of businesses, net of cash disposed[a]	**1,193**	1,841	5,812

[a] Proceeds are stated net of cash and cash equivalents disposed of $33 million (2022 $318 million and 2021 $2 million).

Impairments

Impairment losses and impairment reversals in each segment are described below. For information on significant estimates and judgements made in relation to impairments see Impairment of property, plant and equipment, intangibles, goodwill and equity-accounted entities within Note 1. See also Note 12, and Note 15 for further information on impairments by asset category.

gas & low carbon energy

The 2023 impairment loss of $2,213 million primarily relates to losses incurred in respect of certain assets in Mauritania & Senegal ($1,434 million) and principally arose as a result of increased forecast future expenditure. A further $565 million relates to producing assets in Trinidad and arose as a result of changes to the group's oil and gas price and discount rate assumptions and activity phasing. The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2023 in total, based on their value in use, is $4,811 million.

The 2022 impairment loss of $745 million primarily relates to losses incurred in respect of certain assets in Mauritania & Senegal ($729 million) and principally arose as a result of increased forecast future expenditure. The 2022 impairment reversal of $1,333 million primarily relates to the Trinidad CGU ($1,331 million) and principally arose as a result of changes to the group's oil and gas price assumptions. The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2022 in total, based on their value in use, is $9,609 million.

4. Disposals and impairment – continued

The 2021 impairment loss of $834 million primarily relates to losses incurred in respect of certain assets in Mauritania & Senegal ($819 million) and principally arose as a result of increased forecast future expenditure. The 2021 impairment reversal of $2,338 million primarily relates to reversals in respect of producing assets in the KGD6 CGU in India ($1,229 million) and the Trinidad CGU ($600 million) and principally arose as a result of changes to the group's oil and gas price assumptions and re-assessment of reserves. The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2021 in total, based on their value in use, is $17,330 million.

oil production & operations

Impairment losses and reversals in all years relate primarily to producing assets and, in 2022, equity accounted investments.

The 2023 impairment loss of $1,840 million primarily arose as a result of changes to the group's oil and gas price and discount rate assumptions, activity phasing and disposal decisions in relation to certain assets in North Sea ($852 million) and in bpx energy ($802 million). The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2023 in total, based on their value in use, is $14,072 million.

The 2022 impairment loss of $4,480 million primarily relates to impairment of the Pan American Energy Group S.L. joint venture as a result of expected portfolio changes ($2,900 million) and the decision to exit bp's other businesses with Rosneft within Russia ($1,043 million). The 2022 impairment reversal of $893 million principally relates to changes in price and reserves assumptions in the North Sea ($643 million). The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2022 in total, based on their value in use, is $7,831 million.

The 2021 impairment loss of $1,617 million principally relates to the decision to exit the Sunrise oil sands project in Canada ($1,109 million). The 2021 impairment reversals of $2,479 million principally arose as a result of changes to the group's oil and gas price assumptions and re-assessment of reserves. They include amounts in BPX Energy ($1,356 million) and the North Sea ($950 million). The principal CGU on which a significant impairment reversal was recognized was $982 million for Hawkville in BPX Energy. The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2021, based on their value in use, is $16,586 million.

customers & products

The 2023 impairment loss of $1,614 million primarily relates to strategy implementation and changes to economic assumptions in the products business including an impairment of the Gelsenkirchen refinery in Germany ($1,336 million). The recoverable amounts of the CGUs were based on value-in-use calculations. The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2023 in total, based on their value in use, is $327 million.

The 2022 impairment loss of $1,874 million primarily relates to changes in economic assumptions in the products business including an impairment of the Gelsenkirchen refinery in Germany ($1,366 million), and announced portfolio changes. The recoverable amounts of the CGUs were based on value-in-use calculations. The recoverable amount of all CGUs for which impairment charges or reversals were recognized in 2022 in total, based on their value in use, is $1,648 million.

2021 impairment loss of $962 million principally relates to announced portfolio changes in the products business ($595 million).

Other businesses and corporate

The 2022 impairment loss of $13,536 million arises primarily a result of bp's decision to exit its shareholding in Rosneft ($13,479 million, including $528 million which relates to estimated earnings in the first two months of the year prior to the loss of significant influence). The recoverable amount of the CGU which comprises Rosneft is estimated to be $nil.

Impairment losses totalling $63 million were recognized in 2021.

5. Segmental analysis

The group's organizational structure reflects the various activities in which bp is engaged as well as how performance and resource allocation is evaluated by the chief operating decision maker. At 31 December 2023, bp has three reportable segments: Gas & low carbon energy, Oil production & operations, and Customers & products. Each are managed separately, with decisions taken for the segment as a whole, and represent a single operating segment that does not result from aggregating two or more segments.

Gas & low carbon energy comprises regions with upstream businesses that predominantly produce natural gas, gas marketing and trading activities and the group's solar, wind and hydrogen businesses.

Oil production & operations comprises regions with upstream activities that predominantly produce crude oil.

Customers & products comprises the group's customer-focused businesses, which includes convenience and retail fuels, EV charging, as well as Castrol, aviation and B2B and midstream. It also includes our products businesses, refining & oil trading, as well as our bioenergy businesses.

Other businesses and corporate also comprises the group's shipping and treasury functions, and corporate activities worldwide.

The accounting policies of the operating segments are the same as the group's accounting policies described in Note 1. However, IFRS requires that the measure of profit or loss disclosed for each operating segment is the measure that is provided regularly to the chief operating decision maker for the purposes of performance assessment and resource allocation. For bp, this measure of profit or loss is replacement cost profit or loss before interest and tax which reflects the replacement cost of supplies by excluding from profit or loss before interest and tax inventory holding gains and losses[a]. Replacement cost profit or loss before interest and tax for the group is not a recognized measure under IFRS.

Sales between segments are made at prices that approximate market prices, taking into account the volumes involved. Segment revenues and segment results include transactions between business segments. These transactions and any unrealized profits and losses are eliminated on consolidation, unless unrealized losses provide evidence of an impairment of the asset transferred. Sales to external customers by region are based on the location of the group subsidiary which made the sale. The UK region includes the UK-based international activities of customers & products.

All surpluses and deficits recognized on the group balance sheet in respect of pension and other post-retirement benefit plans are allocated to Other businesses and corporate. However, the periodic expense relating to these plans is allocated to the operating segments based upon the business in which the employees work.

Certain financial information is provided separately for the US as this is an individually material country for bp, and for the UK as this is bp's country of domicile.

a Inventory holding gains and losses represent:
- the difference between the cost of sales calculated using the replacement cost of inventory and the cost of sales calculated on the first-in first-out (FIFO) method after adjusting for any changes in provisions where the net realizable value of the inventory is lower than its cost. Under the FIFO method, which we use for IFRS reporting of inventories other than for trading inventories, the cost of inventory charged to the income statement is based on its historical cost of purchase or manufacture, rather than its replacement cost. In volatile energy markets, this can have a significant distorting effect on reported income. The amounts disclosed as inventory holding gains and losses represent the difference between the charge to the income statement for inventory on a FIFO basis (after adjusting for any related movements in net realizable value provisions) and the charge that would have arisen based on the replacement cost of inventory. For this purpose, the replacement cost of inventory is calculated using data from each operation's production and manufacturing system, either on a monthly basis, or separately for each transaction where the system allows this approach.
- an adjustment relating to certain trading inventories that are not price risk managed which relate to a minimum inventory volume that is required to be held to maintain underlying business activities. This adjustment represents the movement in fair value of the inventories due to prices, on a grade-by-grade basis, during the period. This is calculated from each operation's inventory management system on a monthly basis using the discrete monthly movement in market prices for these inventories.

The amounts disclosed are not separately reflected in the financial statements as a gain or loss. No adjustment is made in respect of the cost of inventories held as part of a trading position and certain other temporary inventory positions that are price risk-managed.

5. Segmental analysis – continued

						$ million
						2023
By business	gas & low carbon energy	oil production & operations	customers & products	other businesses & corporate	Consolidation adjustment and eliminations	Total group
Segment revenues						
Sales and other operating revenues	50,297	24,904	160,215	2,657	(27,943)	210,130
Less: sales and other operating revenues between segments	(1,808)	(23,708)	(367)	(2,060)	27,943	–
Third party sales and other operating revenues	48,489	1,196	159,848	597	–	210,130
Earnings from joint ventures and associates – after interest and tax	(677)	1,164	427	(16)	–	898
Segment results						
Replacement cost profit (loss) before interest and taxation	14,080	11,191	4,230	(903)	(14)	28,584
Inventory holding gains (losses)[a]	1	–	(1,237)	–	–	(1,236)
Profit (loss) before interest and taxation	14,081	11,191	2,993	(903)	(14)	27,348
Finance costs						(3,840)
Net finance income relating to pensions and other post-retirement benefits						241
Profit before taxation						23,749
Other income statement items						
Depreciation, depletion and amortization						
US	96	3,554	1,883	85	–	5,618
Non-US	5,584	2,138	1,665	923	–	10,310
Charges for provisions, net of write-back of unused provisions, including change in discount rate	139	35	2,007	152	–	2,333
Segment assets						
Investments in joint ventures and associates	4,173	10,721	5,327	28	–	20,249
Additions to non-current assets[b]	4,859	7,384	9,383	1,075	–	22,701

[a] See explanation of inventory holding gains and losses on page 193.
[b] Includes additions to property, plant and equipment; goodwill; intangible assets; investments in joint ventures; and investments in associates.

5. Segmental analysis – continued

						$ million
						2022
By business	gas & low carbon energy	oil production & operations	customers & products	other businesses & corporate	Consolidation adjustment and eliminations	Total group
Segment revenues						
Sales and other operating revenues	56,255	33,193	188,623	2,299	(38,978)	241,392
Less: sales and other operating revenues between segments	(5,913)	(30,294)	(1,418)	(1,353)	38,978	–
Third party sales and other operating revenues	50,342	2,899	187,205	946	–	241,392
Earnings from joint ventures and associates – after interest and tax	148	1,609	248	525	–	2,530
Segment results						
Replacement cost profit (loss) before interest and taxation	14,696	19,721	8,869	(26,737)	139	16,688
Inventory holding gains (losses)[a]	(8)	(7)	1,366	–	–	1,351
Profit (loss) before interest and taxation	14,688	19,714	10,235	(26,737)	139	18,039
Finance costs						(2,703)
Net finance income relating to pensions and other post-retirement benefits						69
Profit before taxation						15,405
Other income statement items						
Depreciation, depletion and amortization						
US	75	3,141	1,328	80	–	4,624
Non-US	4,933	2,423	1,542	796	–	9,694
Charges for provisions, net of write-back of unused provisions, including change in discount rate	(234)	213	3,955	143	–	4,077
Segment assets						
Investments in joint ventures and associates	5,299	11,370	3,875	57	–	20,601
Additions to non-current assets[b]	4,439	15,098	9,541	1,047	–	30,125

[a] See explanation of inventory holding gains and losses on page 193.
[b] Includes additions to property, plant and equipment; goodwill; intangible assets; investments in joint ventures; and investments in associates.

5. Segmental analysis – continued

By business	gas & low carbon energy	oil production & operations	customers & products	other businesses & corporate	Consolidation adjustment and eliminations	Total group
						$ million
						2021
Segment revenues						
Sales and other operating revenues	30,840	24,519	130,095	1,724	(29,439)	157,739
Less: sales and other operating revenues between segments	(4,563)	(22,408)	(1,226)	(1,242)	29,439	–
Third party sales and other operating revenues	26,277	2,111	128,869	482	–	157,739
Earnings from joint ventures and associates – after interest and tax	426	576	385	2,612	–	3,999
Segment results						
Replacement cost profit (loss) before interest and taxation	2,133	10,501	2,208	(348)	(67)	14,427
Inventory holding gains (losses)[a]	33	8	3,355	–	–	3,655
Profit (loss) before interest and taxation	2,166	10,509	5,563	(89)	(67)	18,082
Finance costs						(2,857)
Net finance income relating to pensions and other post-retirement benefits						2
Profit before taxation						15,227
Other income statement items						
Depreciation, depletion and amortization						
US	80	3,174	1,349	94	–	4,697
Non-US	4,384	3,354	1,651	719	–	10,108
Charges for provisions, net of write-back of unused provisions, including change in discount rate	173	7	3,063	477	–	3,720
Segment assets						
Investments in joint ventures and associates	5,224	8,044	3,291	14,424	–	30,983
Additions to non-current assets[b]	4,963	6,090	3,940	1,007	–	16,000

a See explanation of inventory holding gains and losses on page 193.
b Includes additions to property, plant and equipment; goodwill; intangible assets; investments in joint ventures; and investments in associates.

By geographical area	US	Non-US	Total
			$ million
			2023
Revenues			
Third party sales and other operating revenues[a]	**60,577**	**149,553**	**210,130**
Other income statement items			
Production and similar taxes	**136**	**1,643**	**1,779**
Non-current assets			
Non-current assets[b c]	**64,238**	**83,816**	**148,054**

a Non-US region includes UK $39,975 million
b Non-US region includes UK $23,949 million
c Includes property, plant and equipment; goodwill; intangible assets; investments in joint ventures; investments in associates; and non-current prepayments.

By geographical area	US	Non-US	Total
			$ million
			2022
Revenues			
Third party sales and other operating revenues[a]	71,118	170,274	241,392
Other income statement items			
Production and similar taxes	194	2,131	2,325
Non-current assets			
Non-current assets[b c]	60,237	89,144	149,381

a Non-US region includes UK $36,541 million.
b Non-US region includes UK $24,813 million.
c Includes property, plant and equipment; goodwill; intangible assets; investments in joint ventures; investments in associates; and non-current prepayments.

5. Segmental analysis – continued

			$ million
			2021
By geographical area	US	Non-US	Total
Revenues			
Third party sales and other operating revenues[a]	53,748	103,991	157,739
Other income statement items			
Production and similar taxes	108	1,200	1,308
Non-current assets			
Non-current assets[b c]	54,395	108,793	163,188

a Non-US region includes UK $11,248 million.
b Non-US region includes UK $19,530 million.
c Includes property, plant and equipment; goodwill; intangible assets; investments in joint ventures; investments in associates; and non-current prepayments.

6. Sales and other operating revenues

			$ million
	2023	2022	2021
Crude oil	**2,413**	6,309	5,483
Oil products	**128,969**	149,854	101,418
Natural gas, LNG and NGLs	**29,541**	41,770	24,378
Non-oil products and other revenues from contracts with customers	**10,298**	7,896	6,082
Revenue from contracts with customers	**171,221**	205,829	137,361
Other operating revenues[a]	**38,909**	35,563	20,378
Total sales and other operating revenues	**210,130**	241,392	157,739

a Principally relates to commodity derivative transactions including sales of bp own production in trading books.

An analysis of third-party sales and other operating revenues by segment and region is provided in Note 5.

The group's sales to customers of crude oil and oil products were substantially all made by the customers & products segment. The group's sales to customers of natural gas, LNG and NGLs were made by the gas & low carbon energy segment. A significant majority of the group's sales of non-oil products and other revenues from contracts with customers were made by the customers & products segment.

7. Income statement analysis

			$ million
	2023	2022	2021
Interest and other income			
Interest income from			
Financial assets measured at amortized cost	**1,034**	371	221
Financial assets measured at fair value through profit or loss	**215**	59	5
Other income	**386**	673	355
	1,635	1,103	581
Currency exchange losses charged to the income statement[a]	**74**	160	345
Expenditure on research and development	**298**	274	266
Costs relating to the Gulf of Mexico oil spill (pre-interest and tax)[b]	**57**	84	70
Finance costs			
Interest expense on lease liabilities	**363**	245	288
Interest expense on other liabilities measured at amortized cost[c]	**3,115**	2,070	1,820
Capitalized at 4.88% (2022 3.56% and 2021 2.63%)[d]	**(514)**	(464)	(287)
Finance debt risk management activities[e]	**(35)**	43	145
Unwinding of discount on provisions	**504**	369	391
Unwinding of discount on other payables measured at amortized cost	**407**	440	500
	3,840	2,703	2,857

a Excludes exchange gains and losses arising on financial instruments measured at fair value through profit or loss.
b Included within production and manufacturing expenses.
c 2023 includes a loss of $49 million (2022 gain of $37 million and 2021 loss of $195 million) associated with the buyback of finance debt.
d Tax relief on capitalized interest is approximately $130 million (2022 $108 million and 2021 $66 million).
e Relates to temporary valuation differences associated with the group's interest rate and foreign currency exchange risk management of finance debt.

8. Exploration for and evaluation of oil and natural gas resources

The following financial information represents the amounts included within the group totals relating to activity associated with the exploration for and evaluation of oil and natural gas resources. All such activity is recorded within the gas & low carbon energy and oil production & operations segments.

For information on significant judgements made in relation to oil and natural gas accounting see Intangible assets in Note 1.

			$ million
	2023	2022	2021
Exploration and evaluation costs			
Exploration expenditure written off	**746**	385	167
Other exploration costs	**251**	200	257
Exploration expense for the year	**997**	585	424
Impairment losses	**20**	2	1
Intangible assets – exploration and appraisal expenditure[a]	**4,328**	4,213	4,289
Liabilities	**109**	88	98
Net assets	**4,219**	4,125	4,191
Cash used in operating activities	**251**	200	257
Cash used in investing activities	**1,039**	909	369

[a] Amount capitalized at 31 December 2023, 2022 and 2021 relates to assets in various regions. The largest of these is approximately $600 million capitalized in the Middle East region (2022 approximately $600 million and 2021 approximately $700 million and capitalized in the Middle East region).

9. Taxation

Tax on profit

			$ million
	2023	2022	2021
Current tax			
Charge for the year	**9,048**	12,523	4,808
Adjustment in respect of prior years	**(373)**	145	138
	8,675	12,668	4,946
Deferred tax			
Origination and reversal of temporary differences in the current year[a]	**(238)**	4,768	3,366
Adjustment in respect of prior years[b]	**(568)**	(674)	(1,572)
	(806)	4,094	1,794
Tax charge on profit	**7,869**	16,762	6,740

[a] 2022 includes a charge of $1,834 million in respect of the impact of the UK Energy Profits Levy on existing temporary differences unwinding over the period 1 January 2023 to 31 March 2028.
[b] The adjustment in respect of prior years reflects the reassessment of the deferred tax balances for prior periods in light of changes in facts and circumstances during the year, including changes to price assumptions and profit forecasts. 2023 also includes a credit of $232 million in respect of a revision to the deferred tax impact of the UK Energy Profits Levy.

In 2023, the total tax credit recognized within other comprehensive income was $735 million (2022 $266 million charge and 2021 $1,252 million charge). In 2023 and 2021 this primarily comprises the deferred tax impact of the remeasurements of the net pension and other post-retirement benefit liability or asset. In 2022 this primarily comprises a release of deferred withholding tax on other comprehensive income movements relating to Rosneft. See Note 32 for further information.

The total tax charge recognized directly in equity was $56 million (2022 $214 million credit and 2021 $170 million charge). This mainly relates to transactions involving non-controlling interests.

9. Taxation – continued

Reconciliation of the effective tax rate

The following table provides a reconciliation of the group weighted average statutory corporate income tax rate to the effective tax rate of the group on profit or loss before taxation. For 2022 the items presented in the reconciliation are affected by the impacts of Rosneft. In order to provide a more meaningful analysis of the effective tax rate for 2022, the table also presents a separate reconciliation for the group excluding the impacts of Rosneft, and for the impacts of Rosneft in isolation.

					$ million
	2023	2022 excluding impact of Rosneft	2022 impact of Rosneft[a]	2022	2021
Profit (loss) before taxation	**23,749**	40,925	(25,520)	15,405	15,227
Tax charge (credit) on profit or loss[b]	**7,869**	17,823	(1,061)	16,762	6,740
Effective tax rate	**33%**	44%	4%	109%	44%
					%
Tax rate computed at the weighted average statutory rate[c]	**34**	42	20	77	54
Increase (decrease) resulting from					
Tax reported in equity-accounted entities[d]	**(2)**	(1)	–	(4)	(3)
Adjustments in respect of prior years	**(4)**	(1)	–	(3)	(9)
Deferred tax not recognized	**2**	(1)	–	(2)	8
Tax incentives for investment	**–**	–	–	(1)	(1)
Disposal impacts[e]	**–**	(3)	–	(8)	(4)
Foreign exchange	**–**	1	–	3	1
Items not deductible for tax purposes	**2**	2	–	5	1
Impact of bp's decision to exit its shareholding in Rosneft	**–**	–	(16)	27	–
Tax rate change effect of UK Energy Profits Levy[f]	**–**	4	–	12	–
Other	**1**	1	–	3	(3)
Effective tax rate	**33**	44	4	109	44

[a] Includes the impact of bp's decision to exit its shareholding in Rosneft and its other businesses with Rosneft in Russia.
[b] The tax credit regarding the impact of Rosneft relates to the release of deferred withholding tax on unremitted earnings.
[c] Calculated based on the statutory corporate income tax rate applicable in the countries in which the group operates, weighted by the profits and losses before tax in the respective countries. 2023 and 2022 include the impact of the UK Energy Profits Levy.
[d] Includes withholding tax in respect of distributions from equity-accounted entities.
[e] 2022 primarily relates to the contribution of bp's Angolan business to Azule Energy and 2021 primarily relates to the divestment of a 20% stake in Oman Block 61.
[f] 2022 comprises the deferred tax impact of the UK Energy Profits Levy on existing temporary differences.

Deferred tax

		$ million
Analysis of movements during the year in the net deferred tax liability	2023	2022
At 1 January	**6,618**	2,370
Exchange adjustments[a]	**134**	(334)
Charge (credit) for the year in the income statement	**(806)**	4,094
Charge (credit) for the year in other comprehensive income	**(735)**	272
Charge (credit) for the year in equity	**56**	(214)
Acquisitions and disposals[b]	**82**	430
At 31 December	**5,349**	6,618

[a] Primarily relates to the foreign currency retranslation effect on the deferred tax liability on pension plan surpluses in the UK.
[b] 2022 primarily relates to the Archaea Energy acquisition and the contribution of bp's Angolan business to Azule Energy.

9. Taxation – continued

The following table provides an analysis of deferred tax in the income statement and the balance sheet by category of temporary difference:

					$ million
	Income statement			Balance sheet	
	2023	2022	2021	2023	2022
Deferred tax liability					
Depreciation	**(1,552)**	1,863	899	**17,392**	18,025
Pension plan surpluses[a]	**133**	42	105	**2,568**	3,022
Derivative financial instruments	**12**	(21)	(33)	**12**	–
Other taxable temporary differences[b]	**10**	(992)	180	**1,020**	1,000
	(1,397)	892	1,151	**20,992**	22,047
Deferred tax asset					
Depreciation	**(166)**	(309)	(846)	**(2,141)**	(1,974)
Lease liabilities	**(176)**	(8)	(43)	**(1,785)**	(1,047)
Pension plan and other post-retirement benefit plan deficits	**(60)**	47	119	**(755)**	(647)
Decommissioning, environmental and other provisions	**563**	770	(744)	**(6,042)**	(6,653)
Derivative financial instruments	**(14)**	(6)	(9)	**(136)**	(282)
Tax credits	**(67)**	1,578	1,282	**(893)**	(779)
Loss carry forward	**296**	1,536	1,064	**(2,467)**	(2,669)
Other deductible temporary differences[c]	**215**	(406)	(180)	**(1,424)**	(1,378)
	591	3,202	643	**(15,643)**	(15,429)
Net deferred tax charge (credit) and net deferred tax liability	**(806)**	4,094	1,794	**5,349**	6,618
Of which – deferred tax liabilities				**9,617**	10,526
– deferred tax assets				**4,268**	3,908

[a] In November 2023 the UK Government announced a reduction in the authorised surplus payments charge applicable to defined benefit pension schemes from 35% to 25%. The legislation has not yet been enacted or substantively enacted, but is expected to be effective from 6 April 2024. The change is expected to reduce the deferred tax liability on pension plan surpluses by around $0.7 billion with the related gain recognised in other comprehensive income when the legislation is substantively enacted.

[b] The 2022 income statement includes amounts relating to deferred withholding tax on unremitted earnings of Rosneft. The 2023 and 2022 balance sheet amounts do not include any temporary differences that are individually significant in their nature.

[c] The 2023 and 2022 balance sheet amounts do not include any temporary differences that are individually significant in their nature.

Of the $4,268 million of deferred tax assets recognized on the group balance sheet at 31 December 2023 (2022 $3,908 million), $2,336 million (2022 $2,779 million) relates to entities that have suffered a loss in either the current or preceding period. For 2023, this mainly includes $1,003 million in Germany, $672 million in Mauritania and $500 million in Senegal (2022 mainly included $1,333 million in the UK, $505 million in Mauritania and $370 million in Senegal). For 2023 these amounts are supported by forecasts consistent with bp's future oil and gas price assumptions (see Note 1 for further information) and for Germany, forecast profits associated with the customers & products businesses, that indicate sufficient future taxable profits will be available to utilize such assets within any applicable expiry period.

A summary of temporary differences, unused tax credits and unused tax losses for which deferred tax has not been recognized is shown in the table below.

		$ billion
At 31 December	2023	2022
Unused US state tax losses[a]	**2.1**	2.1
Unused tax losses – other jurisdictions[b]	**5.6**	5.4
Unused tax credits	**31.3**	28.6
of which – arising in the UK[c]	**27.3**	24.6
– arising in the US[d]	**4.0**	4.0
Deductible temporary differences[e]	**20.7**	22.7
Taxable temporary differences associated with investments in subsidiaries and equity-accounted entities	**0.7**	0.7

[a] For 2023 the majority of these losses expire in the period 2024-2043 with applicable tax rates ranging from 3% to 9%.

[b] 2023 and 2022 mainly relate to the UK, Brazil and Canada. The majority of the unused tax losses have no fixed expiry date.

[c] The UK unused tax credits arise predominantly in overseas branches of UK entities based in jurisdictions with higher statutory corporate income tax rates than the UK. No deferred tax asset has been recognized on these tax credits as they are unlikely to have value in the future; UK taxes on these overseas branches are largely mitigated by double tax relief in respect of overseas tax. These tax credits have no fixed expiry date.

[d] The US unused tax credits predominantly comprise foreign tax credits. No deferred tax asset has been recognized on these tax credits as they are unlikely to have value in the future. For 2023 these tax credits expire in the period 2025-2033.

[e] 2023 and 2022 mainly comprise fixed asset temporary differences in overseas branches of UK entities. Substantially all of the temporary differences have no expiry date.

			$ million
Impact of previously unrecognized deferred tax or write-down of deferred tax assets on tax charge	2023	2022	2021
Current tax benefit relating to the utilization of previously unrecognized deferred tax assets	**360**	492	331
Deferred tax benefit arising from the reversal of a previous write-down of deferred tax assets	**3**	–	773
Deferred tax benefit relating to the recognition of previously unrecognized deferred tax assets	**332**	792	820
Deferred tax expense arising from the write-down of a previously recognized deferred tax asset	**54**	–	29

10. Dividends

The quarterly dividend which is expected to be paid on 28 March 2024 in respect of the fourth quarter 2023 is 7.270 cents per ordinary share ($0.43620 per American Depositary Share (ADS)). The corresponding amount in sterling will be announced on 12 March 2024.

	Pence per share			Cents per share			$ million		
	2023	2022	2021	**2023**	2022	2021	**2023**	2022	2021
Dividends announced and paid in cash									
Preference shares							**1**	1	2
Ordinary shares									
March	**5.5507**	4.1595	3.7684	**6.610**	5.460	5.250	**1,183**	1,068	1,063
June	**5.3089**	4.3556	3.7118	**6.610**	5.460	5.250	**1,152**	1,061	1,062
September	**5.7320**	5.1684	3.9529	**7.270**	6.006	5.460	**1,249**	1,140	1,100
December	**5.7367**	4.9402	4.1045	**7.270**	6.006	5.460	**1,224**	1,088	1,077
	22.3283	18.6237	15.5376	**27.760**	22.932	21.420	**4,809**	4,358	4,304
Dividend announced, paid in March 2024				**7.270**			**1,222**		

The amount of unclaimed dividends recognized as a liability in other payables at 31 December 2023 is $91 million (2022 $69 million).

The board decided not to offer a scrip dividend alternative in respect of any dividends announced since the third quarter 2019, including the fourth quarter 2023 dividend expected to be paid on 28 March 2024.

The financial statements for the year ended 31 December 2023 do not reflect the dividend announced on 6 February 2024 and which is expected to be paid on 28 March 2024; this will be treated as an appropriation of profit in the year ending 31 December 2024.

11. Earnings per share

			Cents per share
Per ordinary share	**2023**	2022	2021
Basic earnings per share	**87.78**	(13.10)	37.57
Diluted earnings per share	**85.85**	(13.10)	37.33

			Dollars per share
Per American Depositary Share (ADS)[a]	**2023**	2022	2021
Basic earnings per share	**5.27**	(0.79)	2.25
Diluted earnings per share	**5.15**	(0.79)	2.24

[a] One ADS is equivalent to six ordinary shares.

Basic earnings per ordinary share amounts are calculated by dividing the profit for the year attributable to bp ordinary shareholders by the weighted average number of ordinary shares outstanding during the year.

The weighted average number of shares outstanding includes certain shares that will be issuable in the future under employee share-based payment plans and excludes treasury shares, which includes shares held by the Employee Share Ownership Plan trusts (ESOPs).

For the diluted earnings per share calculation, the weighted average number of shares outstanding during the year is adjusted for the average number of shares that are potentially issuable in connection with employee share-based payment plans. If the inclusion of potentially issuable shares would decrease loss per share, the potentially issuable shares are excluded from the weighted average number of shares outstanding used to calculate diluted earnings per share.

			$ million
	2023	2022	2021
Profit (loss) attributable to bp shareholders	**15,239**	(2,487)	7,565
Less: dividend requirements on preference shares	**1**	1	2
Profit (loss) for the year attributable to bp ordinary shareholders	**15,238**	(2,488)	7,563

			Shares thousand
	2023	2022	2021
Basic weighted average number of ordinary shares[a]	**17,360,288**	18,987,936	20,128,862
Potential dilutive effect of ordinary shares issuable under employee share-based payment plans	**389,790**	—	131,526
Weighted average number of ordinary shares outstanding used to calculate diluted earnings per share	**17,750,078**	18,987,936	20,260,388

			Shares thousand
	2023	2022	2021
Basic weighted average number of ordinary shares – ADS equivalent	**2,893,381**	3,164,656	3,354,810
Potential dilutive effect of ordinary shares (ADS equivalent) issuable under employee share-based payment plans	**64,965**	—	21,921
Weighted average number of ordinary shares (ADS equivalent) outstanding used to calculate diluted earnings per share	**2,958,346**	3,164,656	3,376,731

[a] Excludes treasury shares. See Note 31 for further information.

11. Earnings per share – continued

The number of ordinary shares outstanding at 31 December 2023, excluding treasury shares, and including certain shares that will be issuable in the future under employee share-based payment plans was 16,824,651,796 (2022 17,974,112,648). Between 31 December 2023 and 16 February 2024, the latest practicable date before the completion of these financial statements, there was a net decrease of 21,406,501 of ordinary shares primarily as a result of share issues in relation to employee share-based payment plans partially offset by share buy backs. For additional information on share buy backs see Note 31.

Employee share-based payment plans

The group operates share and share option plans for directors and certain employees to obtain ordinary shares and ADSs in the company. Information on these plans for directors is shown in the Directors remuneration report on pages 105-132.

The following table shows the number of shares potentially issuable under equity-settled employee share option plans, including the number of options outstanding, the number of options exercisable at the end of each year, and the corresponding weighted average exercise prices. The dilutive effect of these plans at 31 December is also shown.

Share options	2023		2022	
	Number of options[a,b] thousand	Weighted average exercise price $	Number of options[a,b] thousand	Weighted average exercise price $
Outstanding	**545,044**	**4.04**	564,079	4.00
Exercisable	**905**	**3.31**	342	4.99
Dilutive effect	**166,581**	**n/a**	83,204	n/a

[a] Numbers of options shown are ordinary share equivalents (one ADS is equivalent to six ordinary shares).
[b] At 31 December 2023 the quoted market price of one bp ordinary share was £4.66 (2022 £4.75).

In addition, the group operates a number of equity-settled employee share plans under which share units are granted to the group's senior leaders and certain other employees. These plans typically have a three-year performance or restricted period during which the units accrue net notional dividends which are treated as having been reinvested. Leaving employment will normally preclude the conversion of units into shares, but special arrangements apply for participants that leave for qualifying reasons. The number of shares that are expected to vest each year under employee share plans are shown in the table below. The dilutive effect of the employee share plans at 31 December is also shown.

Share plans	2023	2022
Vesting	Number of shares[a] thousand	Number of shares[a] thousand
Within one year	**226,190**	167,672
1 to 2 years	**257,511**	192,734
2 to 3 years	**114,500**	226,027
3 to 4 years	**1,176**	2,595
Over 4 years	**308**	173
	599,685	589,201
Dilutive effect	**284,908**	244,886

[a] Numbers of shares shown are ordinary share equivalents (one ADS is equivalent to six ordinary shares).

There has been a net decrease of 109,230,677 in the number of potential ordinary shares relating to employee share-based payment plans between 31 December 2023 and 16 February 2024.

12. Property, plant and equipment (PP&E)

$ million

	Land and land improvements	Buildings	Oil and gas properties[a,c]	Plant, machinery and equipment	Fittings, fixtures and office equipment[c]	Transportation	Oil depots, storage tanks and service stations	Total
Cost - owned PP&E								
At 1 January 2023	3,513	950	179,028	44,662	2,202	3,076	10,089	243,520
Exchange adjustments	112	2	–	294	31	2	342	783
Additions	134	48	8,252	2,921	221	80	1,126	12,782
Acquisitions	206	–	–	27	12	48	1,060	1,353
Transfers from intangible assets	–	–	171	–	–	–	–	171
Reclassified as assets held for sale	(7)	–	–	(3)	(3)	(1)	(74)	(88)
Deletions and disposals	(34)	(8)	(2,105)	(517)	(173)	(247)	(319)	(3,403)
At 31 December 2023	3,924	992	185,346	47,384	2,290	2,958	12,224	255,118
Depreciation - owned PP&E								
At 1 January 2023	700	501	111,434	22,903	1,671	2,431	5,819	145,459
Exchange adjustments	14	3	–	200	18	2	206	443
Charge for the year	45	30	10,468	1,519	163	85	629	12,939
Impairment losses	108	22	3,628	1,467	–	10	58	5,293
Impairment reversals	–	–	(18)	–	–	(9)	–	(27)
Reclassified as assets held for sale	(1)	–	–	(2)	(1)	(1)	(74)	(79)
Deletions and disposals	(28)	(3)	(2,070)	(416)	(167)	(226)	(275)	(3,185)
At 31 December 2023	838	553	123,442	25,671	1,684	2,292	6,363	160,843
Owned PP&E - net book amount at 31 December 2023	3,086	439	61,904	21,713	606	666	5,861	94,275
Right-of-use assets - net book amount at 31 December 2023[b]	–	1,243	53	916	4	2,463	5,765	10,444
Total PP&E - net book amount at 31 December 2023	3,086	1,682	61,957	22,629	610	3,129	11,626	104,719
Cost - owned PP&E								
At 1 January 2022[c]	3,713	1,245	208,778	44,037	2,213	3,033	10,241	273,260
Exchange adjustments	(184)	(30)	–	(599)	(83)	(14)	(590)	(1,500)
Additions	51	31	6,221	2,188	252	42	993	9,778
Acquisitions	1	40	–	998	–	37	3	1,079
Transfers from intangible assets	–	–	357	–	–	–	–	357
Reclassified as assets held for sale	(49)	–	(4,351)	(1,408)	–	–	–	(5,808)
Deletions and disposals	(19)	(336)	(31,977)	(554)	(180)	(22)	(558)	(33,646)
At 31 December 2022	3,513	950	179,028	44,662	2,202	3,076	10,089	243,520
Depreciation - owned PP&E								
At 1 January 2022[c]	706	654	135,294	21,841	1,774	2,388	5,783	168,440
Exchange adjustments	(26)	(21)	–	(299)	(61)	(11)	(354)	(772)
Charge for the year	47	26	9,770	1,457	135	72	501	12,008
Impairment losses	6	14	1,251	1,487	–	4	336	3,098
Impairment reversals	–	–	(2,221)	(65)	–	(5)	–	(2,291)
Reclassified as assets held for sale	(18)	–	(3,972)	(1,164)	–	–	–	(5,154)
Deletions and disposals	(15)	(172)	(28,688)	(354)	(177)	(17)	(447)	(29,870)
At 31 December 2022	700	501	111,434	22,903	1,671	2,431	5,819	145,459
Owned PP&E - net book amount at 31 December 2022	2,813	449	67,594	21,759	531	645	4,270	98,061
Right-of-use assets - net book amount at 31 December 2022[b]	–	1,157	17	926	7	2,333	3,543	7,983
Total PP&E - net book amount at 31 December 2022	2,813	1,606	67,611	22,685	538	2,978	7,813	106,044

Assets under construction included above	
At 31 December 2023	13,390
At 31 December 2022	22,313

Depreciation charge for the year on right-of-use assets	Buildings	Oil and gas properties	Plant, machinery and equipment	Fittings, fixtures and office equipment	Transportation	Oil depots, storage tanks and service stations	Total
2023	196	16	558	5	1,055	783	2,613
2022	190	18	321	10	853	577	1,969

a For information on significant estimates and judgements made in relation to the estimation of oil and natural reserves see Property, plant and equipment within Note 1.

b $661 million (2022 $560 million) of drilling rig right-of-use assets and $2,337 million (2022 $2,208 million) of shipping vessel right-of-use assets are included in Plant, machinery and equipment and Transportation respectively.

c An amendment has been made to prior year balances to correctly present offsetting movements in oil and gas properties (an increase of $744 million) and fittings, fixtures and office equipment (a decrease of $18 million) cost and depreciation. The amendment has no impact on reported profit or net book amounts of PPE.

13. Capital commitments

Authorized future capital expenditure for property, plant and equipment (excluding right-of-use assets) by group companies for which contracts had been signed at 31 December 2023 amounted to $10,354 million (2022 $9,381 million, 2021 $8,208 million). bp has contracted capital commitments amounting to $1,580 million (2022 $1,764 million, 2021 $1,075 million) in relation to joint ventures and $105 million (2022 $18 million, 2021 $126 million) in relation to associates.

14. Goodwill and impairment review of goodwill

		$ million
	2023	2022
Cost		
At 1 January	12,577	12,991
Exchange adjustments	184	(367)
Acquisitions and other additions	415	573
Reclassified as assets held for sale	–	(58)
Deletions and disposals	–	(562)
At 31 December	13,176	12,577
Impairment losses		
At 1 January	617	618
Exchange adjustments	2	(1)
Impairment losses for the year	85	–
At 31 December	704	617
Net book amount at 31 December	12,472	11,960
Net book amount at 1 January	11,960	12,373

Impairment review of goodwill

		$ million
Goodwill at 31 December	2023	2022
gas & low carbon energy	2,095	2,232
oil production & operations	4,925	4,925
customers & products	5,431	4,740
other businesses & corporate	21	63
	12,472	11,960

Goodwill acquired through business combinations has been allocated to groups of cash-generating units (CGUs) that are expected to benefit from the synergies of the acquisition. For oil production & operations goodwill is allocated to CGUs in aggregate at the segment level, for gas & low carbon energy goodwill is allocated to the hydrocarbon CGUs within the segment. For customers and products, goodwill has been allocated to Castrol, US Fuels, European Fuels, Archaea and Other.

For information on significant estimates and judgements made in relation to impairments see Impairment of property, plant and equipment, intangible assets and goodwill in Note 1.

gas & low carbon energy and oil production & operations

		$ million		$ million
	gas & low carbon energy		oil production & operations	
	2023	2022	2023	2022
Goodwill	2,095	2,232	4,925	4,925
Excess of recoverable amount over carrying amount	5,886	12,971	18,854	36,045

The table above shows the carrying amount of goodwill for the segments at the period end and the excess of the recoverable amount, based on a pre-tax value-in-use calculation, over the carrying amount (headroom) at the date of the most recent test. The decrease in headroom for both segments relates to movements due to the impacts of updates to price and discount rate assumptions.

No material impairment of the goodwill balances in either gas & low carbon energy or oil production & operations was recognized during 2023 (2022 $nil).

14. Goodwill and impairment review of goodwill – continued

The value in use for relevant CGUs in both gas & low carbon energy and oil production & operations is based on the cash flows expected to be generated by the projected production profiles up to the expected dates of cessation of production of each field, based on appropriately risked estimates of reserves and resources. Midstream and supply and trading activities and equity-accounted entities are generally not included in the impairment reviews of goodwill, as they do not represent part of the grouping of CGUs to which the goodwill balances relate and which are used to monitor the goodwill balances for internal management purposes. Where such activities form part of wider CGUs to which goodwill relates they are reflected in the test. As the production profile and related cash flows can be estimated from bp's past experience, management believes that the cash flows generated over the estimated life of field is the appropriate basis upon which to assess goodwill and individual assets for impairment in both gas & low carbon energy and oil & production operations. The estimated date of cessation of production depends on the interaction of a number of variables, such as the recoverable quantities of hydrocarbons, the production profile of the hydrocarbons, the cost of the development of the infrastructure necessary to recover the hydrocarbons, production costs, the contractual duration of the production concession and the selling price of the hydrocarbons produced. As each field has specific reservoir characteristics and economic circumstances, the cash flows of each field are computed using appropriate individual economic models and key assumptions agreed by bp management.

Estimated production volumes and cash flows up to the date of cessation of production on a field-by-field basis, including operating and capital expenditure, are derived from the business segment plans. The production profiles used are consistent with the reserve and resource volumes approved as part of bp's centrally controlled process for the estimation of proved and probable reserves and total resources.

The average production for the purposes of goodwill impairment testing in the gas & low carbon energy segment over the next 15 years is 185 mmboe per year (2022 191 mmboe per year) and in the oil production and operations segment is 402 mmboe per year (2022 346 mmboe per year). Production assumptions used for the goodwill impairment tests in both gas & low carbon energy and oil production & operations reflect management's best estimate of future production of the existing portfolio at the time of the calculation. The group's expectation to reduce upstream hydrocarbon production by around 25% by 2030 from its 2019 baseline is expected to be achieved through future active management, including divestments, and high-grading of the portfolio. Changes in upstream production since 2019 will be included in the best estimates however as the specific future changes to the portfolio are not yet known, these best estimates do not include the full extent of the expected upstream production reductions.

The weighted average pre-tax discount rate used in the review for the oil production & operations segment is 17%, and 11% for the gas & low carbon energy segment (2022 16% for the oil production & operations segment and 10% for the gas & low carbon energy segment).

The most recent reviews for impairment for the oil production & operations and gas & low carbon energy segments were carried out in the fourth quarter. The key assumptions used in the value-in-use calculations are oil and natural gas prices, production volumes and the discount rate. The value-in-use calculations have been prepared for the purposes of determining whether the goodwill balances were impaired. Estimated future cash flows were prepared on the basis of certain assumptions prevailing at the time of the tests. The actual outcomes may differ from the assumptions made. For example, reserves and resources estimates and production forecasts are subject to revision as further technical information becomes available and economic conditions change. Due to economic developments, regulatory change and emissions reduction activity arising from climate concern and other factors, future commodity prices and other assumptions may differ from the forecasts used in the calculations.

Sensitivities to different variables have been estimated using certain simplifying assumptions. For example, lower oil and gas price or production sensitivities do not fully reflect the specific impacts for each contractual arrangement and will not capture all favourable impacts that may arise from cost deflation or savings. A detailed calculation in either segment at any given price or production profile may, therefore, produce a different result.

It is estimated that a 22% (2022 27%) reduction in revenue throughout each year of the remaining life of those assets, either as a result of adverse price or production conditions or a combination of each, would cause the recoverable amount to be equal to the carrying amount of goodwill and related net non-current assets of the oil production and operations segment. For gas & low carbon energy an 15% (2022 18%) reduction would have the same result.

It is estimated that no reasonably possible change in the discount rate would cause the recoverable amount to be equal to the carrying amount of goodwill and related net non-current assets of either segment.

customers & products

	2023						2022					$ million
	Castrol	US Fuels	European Fuels	Archaea	Other	Total	Castrol	US Fuels	European Fuels	Archaea	Other	Total
Goodwill	2,672	792	839	707	421	5,431	2,524	606	815	409	386	4,740

Cash flows for each CGU are derived from the business segment plans, which cover a period of up to five years, except for Archaea where a business plan to 2035 is in place following the recent acquisition. To determine the value in use for each of the cash-generating units, cash flows for a period of 10 years (12 years for Archaea), are discounted and aggregated with a terminal value. It is estimated that no reasonably possible change in the key assumptions used in the US Fuels, European Fuels and Archaea goodwill impairment assessments would cause the recoverable amount to be equal to the carrying amount of goodwill and related net non-current assets.

Castrol

The key assumptions to which the calculation of value in use for the Castrol unit is most sensitive are operating unit margins, sales volumes, and discount rate. Operating margin and sales volumes assumptions used in the detailed impairment review of goodwill calculation are consistent with the assumptions used in the Castrol unit's business plan. A pre-tax discount rate of 9% (2022 8%) is applied in the test. No reasonably possible change in any of these key assumptions would cause the unit's recoverable amount to be equal to the carrying amount of goodwill and related net non-current assets. Cash flows beyond the plan period are extrapolated using a nominal 3.4% (2022 3.4%) growth rate.

15. Intangible assets

								$ million
	2023				2022			
	Exploration and appraisal expenditure[a]	Biogas rights agreements	Other intangibles	Total	Exploration and appraisal expenditure[a]	Biogas rights agreements	Other intangibles	Total
Cost								
At 1 January	**12,571**	**3,398**	**6,817**	**22,786**	14,311	–	6,152	20,463
Exchange adjustments	**–**	**–**	**144**	**144**	–	–	(216)	(216)
Acquisitions[b]	**–**	**–**	**130**	**130**	–	3,398	194	3,592
Remeasurements of acquisition accounting[b]	**–**	**(394)**	**–**	**(394)**	–	–	–	–
Additions	**1,058**	**23**	**799**	**1,880**	894	–	831	1,725
Transfers to property, plant and equipment	**(171)**	**–**	**–**	**(171)**	(357)	–	–	(357)
Reclassified as assets held for sale	**–**	**–**	**(6)**	**(6)**	(9)	–	(7)	(16)
Deletions and disposals	**(383)**	**(38)**	**(767)**	**(1,188)**	(2,268)	–	(137)	(2,405)
At 31 December	**13,075**	**2,989**	**7,117**	**23,181**	12,571	3,398	6,817	22,786
Amortization								
At 1 January	**8,358**	**–**	**4,228**	**12,586**	10,022	–	3,990	14,012
Exchange adjustments	**–**	**–**	**79**	**79**	–	–	(128)	(128)
Exploration expenditure written off	**746**	**–**	**–**	**746**	385	–	–	385
Charge for the year	**–**	**106**	**642**	**748**	–	–	491	491
Impairment losses	**20**	**–**	**77**	**97**	2	–	21	23
Impairment reversals	**–**	**–**	**–**	**–**	–	–	(3)	(3)
Reclassified as assets held for sale	**–**	**–**	**(3)**	**(3)**	(9)	–	(7)	(16)
Deletions and disposals	**(377)**	**(1)**	**(685)**	**(1,063)**	(2,042)	–	(136)	(2,178)
At 31 December	**8,747**	**105**	**4,338**	**13,190**	8,358	–	4,228	12,586
Net book amount at 31 December	**4,328**	**2,884**	**2,779**	**9,991**	4,213	3,398	2,589	10,200
Net book amount at 1 January	**4,213**	**3,398**	**2,589**	**10,200**	4,289	–	2,162	6,451

[a] For further information see Intangible assets within Note 1 and Note 8.
[b] Primarily relates to the acquisition of Archaea Energy Inc. See Note 3 for further information.

16. Investments in joint ventures

The following table provides aggregated summarized financial information for the group's joint ventures as it relates to the amounts recognized in the group income statement and on the group balance sheet.

					$ million
	Income statement			Balance sheet	
	Earnings from joint ventures - after interest and tax			Investments in joint ventures	
	2023	2022	2021	2023	2022
Azule Energy	**700**	540	–	**5,066**	5,264
Pan American Energy Group	**–**	538	(217)	**–**	2,000
Other joint ventures[a]	**(633)**	50	760	**7,369**	5,136
	67	1,128	543	**12,435**	12,400

[a] 2023 includes Pan American Energy Group as no longer considered material to the group post 2022 impairment.

The joint venture that is material to the group at 31 December 2023 is Azule Energy, which was formed during 2022 and in which bp owns a 50% stake.

bp classifies its investment in Azule Energy Holdings Limited as a joint venture because, per the terms of the shareholders' agreements, bp has joint control over Azule Energy. Azule Energy Holdings Limited is based in Angola and its functional currency is USD.

Following the 2022 impairment of bp's investment in PAEG, this is no longer considered material to the group for 2023 and is now included with Other joint ventures.

The following table provides summarized financial information relating to Azule Energy for 2023 and 2022 and Pan American Energy Group for 2022 and 2021. This information is presented on a 100% basis and reflects adjustments made by bp to Azule Energy and Pan American Energy Group's own results in applying the equity method of accounting. bp adjusts Azule Energy Holdings Limited and Pan American Energy Group's results for the accounting required under IFRS relating to bp's purchase of its interests in Azule Energy Holdings Limited and Pan American Energy Group S.L..

The operational and financial information is based on preliminary operational and financial results of Azule Energy Holdings Limited for 2023 and 2022 and Pan American Energy Group S.L. for 2022 and 2021. Actual results may differ from these amounts - immaterial adjustments to the 2022 numbers for Azule Energy Holdings Limited have been included in the 2023 numbers and adjustments to the 2021 numbers for Pan America Energy Group S.L. have been included in the 2022 numbers.

16. Investments in joint ventures – continued

				$ million
				Gross amount
	2023		2022	2021
	Azule Energy	Azule Energy	PAEG	PAEG
Sales and other operating revenues	**5,164**	2,274	6,408	4,394
Profit (loss) before interest and taxation	**2,146**	1,460	1,560	806
Finance costs	**400**	218	376	262
Profit (loss) before taxation[a]	**1,746**	1,242	1,184	544
Taxation[b]	**346**	162	108	978
Profit (loss) for the year	**1,400**	1,080	1,076	(434)
Other comprehensive income	**–**	–	–	–
Total comprehensive income	**1,400**	1,080	1,076	(434)
Non-current assets	**18,788**	22,218	14,598	
Current assets[c]	**3,928**	4,132	3,054	
Total assets	**22,716**	26,350	17,652	
Current liabilities[d]	**2,510**	2,594	1,996	
Non-current liabilities[e]	**10,074**	13,228	5,856	
Total liabilities	**12,584**	15,822	7,852	
Net assets	**10,132**	10,528	9,800	
Less: non-controlling interests	**–**	–	–	
	10,132	10,528	9,800	

[a] Azule Energy includes depreciation and amortisation of $2,768 million (2022 $1,145 million), interest income of $nil (2022 $11 million) and interest expense of $407 million (2022 $218 million). For 2022 and 2021 PAEG includes depreciation and amortisation of $1,039 million and $930 million respectively, interest income of $29 million and $19 million respectively and interest expense of $375 million and $262 million respectively.
[b] PAEG 2021 net income expense includes a deferred tax charge of $415 million related to a change in the income tax rate.
[c] Azule Energy includes cash and cash equivalents of $603 million (2022 $1,031 million). PAEG includes cash and cash equivalents of $1,012 million for 2022.
[d] Azule Energy includes current financial liabilities of $2,409 million (2022 $2,077 million). PAEG includes current financial liabilities of $751 million for 2022.
[e] Azule Energy includes non-current financial liabilities of $4,735 million (2022 $4,700 million). PAEG includes non-current financial liabilities of $2,151 million for 2022.

The group received dividends of $708 million from Azule Energy Holdings Limited in 2023 (2022 $500 million).

The group received dividends of $35 million and $nil from Pan American Energy Group S.L in 2022 and 2021 respectively.

The following table provides aggregated summarized financial information relating to the group's share of joint ventures.

										$ million
										bp share
			2023				2022			2021
	Azule Energy	Other	Total	Azule Energy	PAEG	Other	Total	PAEG	Other	Total
Sales and other operating revenues	**2,582**	**13,705**	**16,287**	1,137	3,204	9,770	14,111	2,197	9,048	11,245
Profit (loss) before interest and taxation	**1,073**	**8**	**1,081**	730	780	255	1,765	403	927	1,330
Finance costs	**200**	**421**	**621**	109	188	137	434	131	58	189
Profit (loss) before taxation	**873**	**(413)**	**460**	621	592	118	1,331	272	869	1,141
Taxation	**173**	**219**	**392**	81	54	67	202	489	107	596
Non-controlling interest	**–**	**1**	**1**	–	–	1	1	–	2	2
Profit (loss) for the year	**700**	**(633)**	**67**	540	538	50	1,128	(217)	760	543
Other comprehensive income	**–**	**45**	**45**	–	–	50	50	–	5	5
Total comprehensive income	**700**	**(588)**	**112**	540	538	100	1,178	(217)	765	548
Non-current assets	**9,394**	**16,505**	**25,899**	11,109	7,299	7,775	26,183			
Current assets	**1,964**	**4,387**	**6,351**	2,066	1,527	2,778	6,371			
Total assets	**11,358**	**20,892**	**32,250**	13,175	8,826	10,553	32,554			
Current liabilities	**1,255**	**2,992**	**4,247**	1,297	998	1,713	4,008			
Non-current liabilities	**5,037**	**7,505**	**12,542**	6,614	2,928	3,687	13,229			
Total liabilities	**6,292**	**10,497**	**16,789**	7,911	3,926	5,400	17,237			
Net assets	**5,066**	**10,395**	**15,461**	5,264	4,900	5,153	15,317			
Less: non-controlling interests	**–**	**(15)**	**(15)**	–	–	(13)	(13)			
	5,066	**10,380**	**15,446**	5,264	4,900	5,140	15,304			
Group investment in joint ventures										
Group share of net assets (as above)	**5,066**	**10,380**	**15,446**	5,264	4,900	5,140	15,304			
Cumulative impairment charge	**–**	**(3,007)**	**(3,007)**	–	(2,900)	–	(2,900)			
Loans made by group companies to joint ventures	**–**	**(4)**	**(4)**	–	–	(4)	(4)			
	5,066	**7,369**	**12,435**	5,264	2,000	5,136	12,400			

16. Investments in joint ventures – continued

Transactions between the group and its joint ventures are summarized below.

						$ million
Sales to joint ventures		2023		2022		2021
Product	Sales	Amount receivable at 31 December	Sales	Amount receivable at 31 December	Sales	Amount receivable at 31 December
LNG, crude oil and oil products, natural gas	**3,585**	**501**	4,212	316	3,923	292

Purchases from joint ventures		2023		2022		2021
Product	Purchases	Amount payable at 31 December	Purchases	Amount payable at 31 December	Purchases	Amount payable at 31 December
LNG, crude oil and oil products, natural gas, refinery operating costs, plant processing fees	**3,328**	**427**	1,893	574	716	93

In the normal course of business, bp enters into various arm's length transactions with joint ventures including fixed price commitments to sell and to purchase commodities, forward sale and purchase contracts and agency agreements.

The terms of the outstanding balances receivable from joint ventures are typically 30 to 45 days. The balances are unsecured and will be settled in cash. There are no significant provisions for doubtful debts relating to these balances and no significant expense recognized in the income statement in respect of bad or doubtful debts. Dividends receivable are not included in the table above.

The majority of sales to joint ventures in 2023 relate to heating oil, gasoline, diesel and lubricant product transactions with Mobene and Ocwen Energy. The majority of purchases from joint ventures in 2023 relate to crude oil and oil products transactions with Azule Energy.

The bp investment in Pan American Energy Group S.L. joint venture had an impairment charge in 2022 of $2,900 million as a result of expected portfolio changes.

bp's share of net impairment charges recognized by joint ventures in 2023 was $1,285 million (2022 $256 million charge and 2021 reversals of $214 million) of which $1,152 million charge (2022 $276 million and 2021 $nil) was in the gas and low carbon energy segment and $133 million charge (2022 $20 million reversals and 2021 reversals of $214 million) was in the oil production & operations segment. The 2023 charges in the gas and low carbon energy segment principally relate to the group's US offshore wind investments. The project assets were measured at fair value less costs of disposal following the rejection in October 2023 of requests to renegotiate the power purchase agreements associated with three wind farms off the coast of New York (Empire Wind 1 and 2, Beacon Wind 1) and the announcement in January 2024 that bp and Equinor will restructure those investments. Subject to approvals, bp will assume full ownership of the Beacon projects and Equinor the Empire projects.

17. Investments in associates

The following table provides aggregated summarized financial information for the group's associates as it relates to the amounts recognized in the group income statement and on the group balance sheet. There were no individually material associates to the Group at 31 December 2023. The associate which was material to the Group at 31 December 2021 was Rosneft. At 31 December 2021 bp classified its investment in Rosneft as an associate because, in management's judgement, bp had significant influence over Rosneft. On 27 February 2022, bp announced it would exit its shareholding in Rosneft and bp's two nominated Rosneft directors both stepped down from Rosneft's board. As a result, the significant judgement on significant influence over Rosneft was reassessed. Since the first quarter 2022, bp accounts for its interest in Rosneft and its other businesses with Rosneft within Russia, as financial assets measured at fair value within 'Other investments'. For further information see Note 1 *Significant judgements and estimate: investment in Rosneft*.

					$ million
		Income statement			Balance sheet
		Earnings from associates - after interest and tax			Investments in associates
	2023	2022	2021	**2023**	2022
Rosneft	**—**	528	2,694	**—**	—
Other associates	**831**	874	762	**7,814**	8,201
	831	1,402	3,456	**7,814**	8,201

The group recognized dividends, net of withholding tax, of $nil from Rosneft in 2023 (2022 $nil and 2021 $640 million).

17. Investments in associates – continued

The following table provides summarized financial information relating to Rosneft for 2021. This information is presented on a 100% basis and reflects adjustments made by bp to Rosneft's own results in applying the equity method of accounting. bp adjusted Rosneft's results for the accounting required under IFRS relating to bp's purchase of its interest in Rosneft and the amortization of the deferred gain relating to the disposal of bp's interest in TNK-BP.

	$ million
	Gross amount
	2021
Sales and other operating revenues	118,755
Profit before interest and taxation	18,537
Finance costs	1,357
Profit (loss) before taxation	17,180
Taxation	3,209
Non-controlling interests	1,743
Profit (loss) for the year	12,228
Other comprehensive income	54
Total comprehensive income	12,282

Summarized financial information for the group's share of associates is shown below.

					$ million
					bp share
	2023	2022			2021
	Total	Total	Rosneft	Other	Total
Sales and other operating revenues	**11,396**	14,841	26,163	10,005	36,168
Profit before interest and taxation	**2,279**	3,053	4,084	1,602	5,686
Finance costs	**41**	73	299	73	372
Profit (loss) before taxation	**2,238**	2,980	3,785	1,529	5,314
Taxation	**1,407**	1,498	707	767	1,474
Non-controlling interests	**–**	80	384	–	384
Profit (loss) for the year	**831**	1,402	2,694	762	3,456
Other comprehensive income	**(237)**	352	12	27	39
Total comprehensive income	**594**	1,754	2,706	789	3,495
Non-current assets	**11,483**	11,993			
Current assets	**3,776**	3,368			
Total assets	**15,259**	15,361			
Current liabilities	**3,003**	2,936			
Non-current liabilities	**4,473**	4,255			
Total liabilities	**7,476**	7,191			
Net assets	**7,783**	8,170			
Less: non-controlling interests	**–**	–			
	7,783	8,170			
Group investment in associates					
Group share of net assets (as above)	**7,783**	8,170			
Loans made by group companies to associates	**31**	31			
	7,814	8,201			

17. Investments in associates – continued

Transactions between the group and its associates are summarized below.

Sales to associates						$ million
		2023		2022		2021
Product	Sales	Amount receivable at 31 December	Sales	Amount receivable at 31 December	Sales	Amount receivable at 31 December
LNG, crude oil and oil products, natural gas	**1,009**	**368**	1,042	417	852	201

Purchases from associates						$ million
		2023		2022		2021
Product	Purchases	Amount payable at 31 December	Purchases	Amount payable at 31 December	Purchases	Amount payable at 31 December
Crude oil and oil products, natural gas, transportation tariff	**5,473**	**2,607**	6,199	2,086	7,683	2,072

In the normal course of business, bp enters into various arm's length transactions with associates including fixed price commitments to sell and to purchase commodities, forward sale and purchase contracts and agency agreements.

The terms of the outstanding balances receivable from associates are typically 30 to 45 days. The balances are unsecured and will be settled in cash. There are no significant provisions for doubtful debts relating to these balances and no significant expense recognized in the income statement in respect of bad or doubtful debts. Dividends receivable are not included in the table above.

The majority of purchases from associates in 2023 and 2022 relate to crude oil and oil products transactions with Aker BP. The majority of purchases from associates in 2021 relate to crude oil and oil products transactions with Rosneft. Sales to associates are related to various entities.

bp has commitments amounting to $8,615 million (2022 $8,488 million), primarily in relation to contracts with its associates for the purchase of transportation capacity. For information on capital commitments in relation to associates see Note 13.

bp's share of impairment charges taken by associates in 2023 was $nil (2022 $nil).

18. Other investments

				$ million
		2023		2022
	Current	Non-current	Current	Non-current
Equity investments[a]	–	**1,177**	–	1,040
Contingent consideration	**754**	**939**	364	1,522
Other	**89**	**73**	214	108
	843	**2,189**	578	2,670

a The majority of equity investments are unlisted.

Contingent consideration relates to amounts arising on disposals which are financial assets classified as measured at fair value through profit or loss. The fair value is determined using an estimate of discounted future cash flows that are expected to be received and is considered a level 3 valuation under the fair value hierarchy. Future cash flows are estimated based on inputs including oil and natural gas prices, production volumes and operating costs related to the disposed operations. The discount rate used is based on a risk-free rate adjusted for asset-specific risks. The contingent consideration principally relates to the disposal of our Alaskan business.

19. Inventories

		$ million
	2023	2022
Crude oil	**3,227**	3,608
Natural gas	**410**	825
Emissions allowances	**464**	436
Refined petroleum and petrochemical products	**7,413**	7,920
	11,514	12,789
Trading inventories	**9,850**	14,004
	21,364	26,793
Supplies	**1,455**	1,288
	22,819	28,081
Cost of inventories expensed in the income statement	**119,307**	141,043

The inventory valuation at 31 December 2023 is stated net of a provision of $497 million (2022 $483 million) to write down inventories to their net realizable value, of which $310 million (2022 $195 million) relates to hydrocarbon inventories. The net charge to the income statement in the year in respect of inventory net realizable value provisions was $87 million (2022 $199 million charge), of which $112 million charge (2022 $137 million charge) related to hydrocarbon inventories.

Trading inventories are valued using quoted benchmark prices adjusted as appropriate for location and quality differentials. They are predominantly categorized within level 2 of the fair value hierarchy.

20. Trade and other receivables

				$ million
		2023		2022
	Current	Non-current	Current	Non-current
Financial assets				
Trade receivables	**25,175**	**652**	28,229	12
Amounts receivable from joint ventures and associates	**843**	**26**	654	79
Other receivables	**3,936**	**722**	3,953	608
	29,954	**1,400**	32,836	699
Non-financial assets				
Sales taxes and production taxes	**1,028**	**355**	1,037	379
Other receivables	**141**	**12**	137	14
	1,169	**367**	1,174	393
	31,123	**1,767**	34,010	1,092

In both 2023 and 2022 the group entered into non-recourse arrangements to discount certain receivables in support of supply and trading activities and the management of credit risk.

Trade and other receivables are predominantly non-interest bearing.

See Note 29 for further information.

21. Valuation and qualifying accounts

						$ million
		2023		2022		2021
	Trade and other receivables	Fixed asset investments	Trade and other receivables	Fixed asset investments	Trade and other receivables	Fixed asset investments
At 1 January	**636**	**3,050**	584	169	555	186
Charged to costs and expenses	**866**	**176**	143	17,471	136	3
Charged to other accounts[a]	**1**	**(1)**	(8)	(27)	(11)	–
Deductions	**(79)**	**(42)**	(83)	(41)	(96)	(20)
Reclassifications	**–**	**–**	–	(14,522)	–	–
At 31 December	**1,424**	**3,183**	636	3,050	584	169

a Principally exchange adjustments.

Valuation and qualifying accounts relating to trade and other receivables comprise expected credit loss allowances. The expected credit loss allowance comprises $1,301 million (2022 $513 million, 2021 $456 million) relating to receivables that were credit-impaired at the end of the year and $123 million (2022 $123 million, 2021 $128 million) relating to receivables that were not credit-impaired at the end of the year.

Valuation and qualifying accounts relating to fixed asset investments comprise impairment provisions for investments in equity-accounted entities. The amount charged to costs and expenses in 2022 principally relates to bp's investments in Rosneft and Pan American Energy Group S.L.. Amounts related to bp's investments in Rosneft and other businesses with Rosneft within Russia were reclassified in 2022 following bp's loss of significant influence.

Valuation and qualifying accounts are deducted in the balance sheet from the assets to which they apply. For further information on the group's credit risk management policies and how the group recognizes and measures expected losses see Note 29.

22. Trade and other payables

				$ million
	2023		2022	
	Current	Non-current	Current	Non-current
Financial liabilities				
Trade payables	42,406	–	47,210	–
Amounts payable to joint ventures and associates	3,034	–	2,660	–
Payables for capital expenditure and acquisitions	3,063	305	2,579	446
Payables related to the Gulf of Mexico oil spill	1,130	7,602	1,213	8,350
Other payables	7,313	663	5,995	1,133
	56,946	8,570	59,657	9,929
Non-financial liabilities				
Sales taxes, customs duties, production taxes and social security	2,264	134	2,361	124
Other payables	1,945	1,372	1,966	334
	4,209	1,506	4,327	458
	61,155	10,076	63,984	10,387

Materially all of bp's trade payables have payment terms of less than 60 days and give rise to operating cash flows.

Trade and other payables, other than those relating to the Gulf of Mexico oil spill, are predominantly interest free. See Note 29 (c) for further information.

Payables related to the Gulf of Mexico oil spill include amounts payable under the 2016 consent decree and settlement agreement with the United States and five Gulf coast states, including amounts payable for natural resource damages, state claims and Clean Water Act penalties. On a discounted basis the amounts included in payables related to the Gulf of Mexico oil spill for these elements of the agreements are $3,782 million payable over 9 years, $2,098 million payable over 10 years and $2,812 million payable over 9 years respectively at 31 December 2023. Reported within net cash provided by operating activities in the group cash flow statement is a net cash outflow of $1,280 million (2022 outflow of $1,370 million, 2021 outflow of $1,484 million) related to the Gulf of Mexico oil spill, which includes payments made in relation to these agreements. For full details of these agreements, see *bp Annual Report and Form 20-F 2015* - Legal Proceedings.

Payables related to the Gulf of Mexico oil spill at 31 December 2023 also include amounts payable for settled economic loss and property damage claims which are payable over a period of up to four years.

23. Provisions

						$ million
	Decommissioning	Environmental	Litigation and claims	Emissions	Other	Total
At 1 January 2023	12,343	1,721	779	5,062	1,419	21,324
Exchange adjustments	129	6	–	29	25	189
Acquisitions	5	33	2	–	–	40
New and increase in existing provisions[a]	915	228	147	2,347	718	4,355
Write-back of unused provisions[a]	(3)	(51)	(15)	(710)	(261)	(1,040)
Unwinding of discount[b]	418	55	19	–	12	504
Change in discount rate	(921)	(41)	(23)	–	(6)	(991)
Utilization	(70)	(307)	(173)	(3,703)	(491)	(4,744)
Reclassified to other payables	(444)	(29)	–	–	–	(473)
Reclassified as liabilities directly associated with assets held for sale	–	(1)	(9)	–	–	(10)
Deletions	–	–	–	–	(15)	(15)
At 31 December 2023	12,372	1,614	727	3,025	1,401	19,139
Of which – current	637	371	111	2,807	492	4,418
– non-current	11,735	1,243	616	218	909	14,721

[a] Recognized in the Group income statement, other than changes in decommissioning provisions related to owned assets.
[b] Recognized in the Group income statement.

The decommissioning provision primarily comprises the future cost of decommissioning oil and natural gas wells, facilities and related pipelines. The environmental provision includes provisions for costs related to the control, abatement, clean-up or elimination of environmental pollution relating to soil, groundwater, surface water and sediment contamination. The litigation and claims category includes provisions for matters related to, for example, commercial disputes, product liability, and allegations of exposures of third parties to toxic substances. Emissions provisions primarily relate to obligations under the U.S. Environmental Protection Agency Renewable Fuel Standard Program and are driven by the amount of the obligations outstanding and current price of the related credits. The provision will principally be settled through allowances already held as inventory in the group balance sheet.

For information on significant estimates and judgements made in relation to provisions, see Provisions and contingencies within Note 1.

Gulf of Mexico oil spill

The group has recognized certain assets, payables and provisions and incurs certain residual costs relating to the Gulf of Mexico oil spill that occurred in 2010. For further information see Notes 7, 22, 29, 33. The litigation and claims provision presented in the table above includes the latest estimate for the remaining costs associated with the Gulf of Mexico oil spill. The amounts payable may differ from the amount provided and the timing of payments is uncertain.

24. Pensions and other post-retirement benefits

Most group companies have pension plans, the forms and benefits of which vary with conditions and practices in the countries concerned. Pension benefits may be provided through defined contribution plans (money purchase schemes) or defined benefit plans (final salary and other types of schemes with committed pension benefit payments). For defined contribution plans, retirement benefits are determined by the value of funds arising from contributions paid in respect of each employee. For defined benefit plans, retirement benefits are based on such factors as an employee's pensionable salary and length of service. Defined benefit plans may be funded or unfunded. The assets of funded plans are generally held in separately administered trusts.

For information on significant estimates and judgements made in relation to accounting for these plans see Pensions and other post-retirement benefits in Note 1.

The pension obligation in the UK consists primarily of a funded final salary pension plan under which retired employees draw the majority of their benefit as an annuity. This pension plan is governed by a corporate trustee whose board is composed of four member-nominated directors, four company-nominated directors, one independent director and one independent chair nominated by the company. The trustee board is required by law to act in the best interests of the plan participants and is responsible for setting certain policies, such as investment policies of the plan. This plan was closed to new joiners in 2010 and was closed to future accrual on 30 June 2021.

Employees in the UK are eligible for membership of a defined contribution plan.

In the US, all pension benefits now accrue under a cash balance formula. Benefits previously accrued under final salary formulas are legally protected. Retiring US employees typically take their pension benefit in the form of a lump sum payment upon retirement. The plan is funded and its assets are overseen by a fiduciary Investment Committee. During 2023 the committee was composed of six bp employees appointed by the president of bp Corporation North America Inc. (the appointing officer). The Investment Committee is required by law to act in the best interests of the plan participants and is responsible for setting certain policies, such as the investment policies of the plan. US employees are also eligible to participate in a defined contribution (401k) plan in which employee contributions are matched with company contributions.

In the US, group companies also provide post-retirement healthcare to eligible retired employees and their dependants (and, in certain legacy cases, life insurance coverage); the entitlement to these benefits is based on the date of hire, the employee remaining in service until a specified age and completion of a minimum period of service.

In the Eurozone, there are defined benefit pension plans in Germany, France, the Netherlands and other countries. In Germany and France, the majority of the pensions are unfunded. In Germany, the group's largest Eurozone plan, employees receive a pension and also have a choice to supplement their core pension through salary sacrifice. For employees who joined since 2002, the core pension benefit is a career average plan with retirement benefits based on such factors as an employee's pensionable salary and length of service. The returns on the notional contributions made by both the company and employees are based on the interest rate which is set out in German tax law. Retired German employees take their pension benefit typically in the form of an annuity. The German plans are governed by legal agreements between bp and the works council or between bp and the trade union.

The level of contributions to funded defined benefit plans is the amount needed to provide adequate funds to meet pension obligations as they fall due. During 2023 the aggregate level of contributions was $42 million (2022 $74 million and 2021 $274 million). The aggregate level of contributions in 2024 is expected to be approximately $150 million and includes contributions in all countries that we expect to be required to make contributions by law or under contractual agreements, as well as an allowance for discretionary funding.

For the primary UK plan there is a funding agreement between the group and the trustee. On a three year cycle a schedule of contributions is agreed covering the next five years. The schedule of contributions is next scheduled to be updated after the 31 December 2023 formal actuarial valuation. No contractually committed funding was due at 31 December 2023. The closure of the defined benefit plan to future accrual reduces the need for funding and the plan's expected future funding volatility.

The surplus relating to the primary UK pension plan is recognized on the balance sheet on the basis that the company is entitled to a refund of any remaining assets once all members have left the plan.

Minimum pension funding in the US is determined by legislation and is supplemented by discretionary contributions. No contributions were made into the US pension plan in 2023 and no statutory funding requirement is expected in the next 12 months.

The surplus relating to the US pension fund is recognized on the balance sheet on the basis that economic benefit can be gained from the surplus through a reduction in future contributions.

There was no minimum funding requirement for the US plan, and no significant minimum funding requirements in other countries at 31 December 2023.

The obligation and cost of providing pensions and other post-retirement benefits is assessed annually using the projected unit credit method. The date of the most recent actuarial review was 31 December 2023. The UK plans are subject to a formal actuarial valuation every three years; valuations are required more frequently in many other countries. The most recent formal actuarial valuation of the primary UK pension plan was as at 31 December 2020; the 31 December 2023 valuation is currently underway. A valuation of the US plan and largest Eurozone plans are carried out annually.

24. Pensions and other post-retirement benefits – continued

The material financial assumptions used to estimate the benefit obligations of the various plans are set out below. The assumptions are reviewed by management at the end of each year and are used to evaluate the accrued benefit obligation at 31 December and pension expense for the following year.

									%
			UK			US			Eurozone
Financial assumptions used to determine benefit obligation[a]	**2023**	2022	2021	**2023**	2022	2021	**2023**	2022	2021
Discount rate for plan liabilities	**4.8**	5.0	1.8	**5.0**	5.2	2.7	**3.6**	4.2	1.3
Rate of increase for pensions in payment	**2.8**	2.9	3.2	**–**	–	–	**2.1**	1.8	1.4
Rate of increase in deferred pensions	**2.8**	2.9	3.2	**–**	–	–	**0.7**	0.6	0.4
Inflation for plan liabilities	**3.0**	3.1	3.3	**2.0**	2.0	2.1	**2.4**	2.1	1.6

									%
			UK			US			Eurozone
Financial assumptions used to determine benefit expense	**2023**	2022	2021	**2023**	2022	2021	**2023**	2022	2021
Discount rate for plan service cost[b]	**N/A**	N/A	1.5	**5.2**	2.8	2.4	**4.3**	1.7	1.4
Discount rate for plan other finance expense[c]	**5.0**	1.8	1.7	**5.2**	2.7	2.2	**4.2**	1.3	1.0
Inflation for plan service cost[b]	**N/A**	N/A	2.8	**2.0**	2.1	1.7	**2.1**	1.6	1.5

[a] Salary growth has not been a material financial assumption for the Group following the closure of the primary pension plan to future accrual in 2021.
[b] UK discount rate and inflation rate assumptions are not significant in determining the benefit expense following the closure of the primary UK plan to future accrual in 2021. Rates for the remaining small worldwide plan administered/reported through the UK are 5.0% (2022 2.5%) and 1.9% (2022 2.2%) respectively.
[c] The discount rate for plan other finance expense in 2021 was 1.4% for the primary UK plan for the period before the plan closed to future accrual on 30th June 2021 and 1.9% thereafter.

The discount rate assumptions are based on third-party AA corporate bond indices and for our largest plans in the UK, US and the Eurozone we use yields that reflect the maturity profile of the expected benefit payments. The inflation rate assumptions for our UK and US plans are based on the difference between the yields on index-linked and fixed-interest long-term government bonds. In other countries, including the Eurozone, we use this approach, or advice from the local actuary depending on the information available. The inflation assumptions are used to determine the rate of increase for pensions in payment and the rate of increase in deferred pensions where there is such an increase.

In addition to the financial assumptions, we regularly review the demographic and mortality assumptions. The mortality assumptions reflect best practice in the countries in which we provide pensions and have been chosen with regard to applicable published tables adjusted where appropriate to reflect the experience of the group and an extrapolation of past longevity improvements into the future. bp's most substantial pension liabilities are in the UK, the US and the Eurozone where our mortality assumptions are as follows:

									Years
Mortality assumptions			UK			US			Eurozone
	2023	2022	2021	**2023**	2022	2021	**2023**	2022	2021
Life expectancy at age 60 for a male currently aged 60	**27.4**	26.9	26.9	**25.0**	25.0	24.9	**26.1**	26.0	25.8
Life expectancy at age 60 for a male currently aged 40	**29.2**	28.5	28.4	**26.7**	26.6	26.6	**28.6**	28.5	28.3
Life expectancy at age 60 for a female currently aged 60	**29.2**	28.8	28.9	**28.1**	28.0	27.9	**29.3**	29.3	29.1
Life expectancy at age 60 for a female currently aged 40	**30.6**	30.6	30.5	**29.6**	29.5	29.4	**31.6**	31.4	31.2

Pension plan assets are generally held in trusts, the primary objective of which is to accumulate assets sufficient to meet the obligations of the plans. The assets of the trusts are invested in a manner consistent with fiduciary obligations and principles that reflect current practices in portfolio management.

A proportion of the assets are held in equities, which are expected to generate a higher level of return over the long term, with an acceptable level of risk. In order to provide reasonable assurance that no single security or type of security has an unwarranted impact on the total portfolio, the investment portfolios are highly diversified.

The trustee's long-term investment objective for the primary UK plan as it matures is to invest in assets whose value changes in the same way as the plan liabilities, in order to reduce the level of funding risk. To move towards this objective, the UK plan uses a liability driven investment (LDI) approach for part of the portfolio, investing primarily in government bonds to achieve this matching effect for the most significant plan liability assumptions of interest rate and inflation rate. This is partly funded by short-term sale and repurchase agreements, whereby the plan borrows money using existing bonds as security and which will be bought back at a specified price at an agreed future date. The funds raised are used to invest in further bonds to increase the proportion of assets which match the plan liabilities. The borrowings are shown separately in the analysis of pension plan assets in the table below.

For the primary UK pension plan there is an agreement with the trustee to increase the proportion of assets with liability matching characteristics over time primarily by reducing the proportion of plan assets held as equities and increasing the proportion held as bonds. There is a similar agreement in place for the primary US plan. During 2023, the asset allocation policy of the UK plan switched 2% of plan assets from equities to bonds (2022 2%). The US asset allocation policy remained consistent.

The current asset allocation policy for the major plans at 31 December 2023 was as follows:

	UK	**US**
Asset category	**%**	**%**
Total equity (including private equity)	**8**	**19**
Bonds/cash (including LDI)	**85**	**81**
Property/real estate	**7**	**–**

24. Pensions and other post-retirement benefits – continued

The amounts invested under the LDI programme by the primary UK pension plan as at 31 December 2023 were $6,215 million (2022 $3,981 million) of government-issued nominal bonds and $13,177 million (2022 $11,945 million) of index-linked bonds.

Some of the group's pension plans in the Eurozone and other countries use derivative financial instruments as part of their asset mix to manage the level of risk. The fair value of these instruments is included in other assets in the table below.

The group's main pension plans do not invest directly in either securities or property/real estate of the company or of any subsidiary.

The fair values of the various categories of assets held by the defined benefit plans at 31 December are presented in the table below, including the effects of derivative financial instruments. Movements in the fair value of plan assets during the year are shown in detail in the table on page 216.

					$ million
	UK[a]	US[b]	Eurozone	Other	Total
Fair value of pension plan assets					
At 31 December 2023					
Listed equities – developed markets	**862**	**97**	**333**	**232**	**1,524**
– emerging markets	**28**	**12**	**51**	**66**	**157**
Private equity[c]	**2,022**	**1,014**	**–**	**2**	**3,038**
Government issued nominal bonds[d]	**6,285**	**1,457**	**746**	**285**	**8,773**
Government issued index-linked bonds[d]	**13,177**	**–**	**88**	**–**	**13,265**
Corporate bonds[d]	**6,144**	**2,802**	**605**	**166**	**9,717**
Property[e]	**2,437**	**–**	**92**	**17**	**2,546**
Cash	**453**	**59**	**82**	**85**	**679**
Other[f]	**1,123**	**33**	**55**	**391**	**1,602**
Debt (repurchase agreements) used to fund liability driven investments	**(6,485)**	**–**	**–**	**–**	**(6,485)**
	26,046	**5,474**	**2,052**	**1,244**	**34,816**
At 31 December 2022					
Listed equities – developed markets	1,252	127	299	213	1,891
– emerging markets	117	17	48	71	253
Private equity[c]	2,715	1,126	–	2	3,843
Government issued nominal bonds[d]	4,039	1,370	682	263	6,354
Government issued index-linked bonds[d]	11,945	–	79	–	12,024
Corporate bonds[d]	6,317	2,569	563	146	9,595
Property[e]	2,297	–	89	18	2,404
Cash	567	175	61	116	919
Other[f]	1,088	33	56	357	1,534
Debt (repurchase agreements) used to fund liability driven investments	(5,290)	–	–	–	(5,290)
	25,047	5,417	1,877	1,186	33,527
At 31 December 2021					
Listed equities – developed markets	2,964	340	473	290	4,067
– emerging markets	252	45	67	76	440
Private equity[c]	3,233	1,537	–	3	4,773
Government issued nominal bonds[d]	7,491	2,606	974	432	11,503
Government issued index-linked bonds[d]	24,516	–	100	–	24,616
Corporate bonds[d]	10,128	2,475	689	498	13,790
Property[e]	2,714	–	110	22	2,846
Cash	1,136	116	54	69	1,375
Other	1,133	54	70	22	1,279
Debt (repurchase agreements) used to fund liability driven investments	(10,723)	–	–	–	(10,723)
	42,844	7,173	2,537	1,412	53,966

[a] Bonds held by the UK pension plans are denominated in sterling or hedged back to sterling to minimize foreign currency exposure. Property held by the UK pension plans is in the United Kingdom.
[b] Bonds held by the US pension plans are denominated in US dollars or hedged back to USD to minimize foreign currency exposure.
[c] Private equity is valued at fair value based on the most recent transaction price or third-party net asset, revenue or earnings based valuations that generally result in the use of significant unobservable inputs.
[d] Bonds held by pension plans are predominantly valued using observable market data based inputs other than quoted market prices in active markets.
[e] Properties are valued based on an analysis of recent market transactions supported by market knowledge derived from third-party professional valuers that generally result in the use of significant unobservable inputs.
[f] Other includes insurance policies arising from annuity buy-in in Canada amounting to $374 million

24. Pensions and other post-retirement benefits – continued

					$ million
					2023
	UK	US	Eurozone	Other	Total
Analysis of the amount charged to profit or loss					
Current service cost[a]	44	156	47	21	268
Past service cost[b]	4	–	5	(2)	7
Settlement[b]	–	–	–	3	3
Operating charge (credit) relating to defined benefit plans	48	156	52	22	278
Payments to defined contribution plans	132	158	7	36	333
Total operating charge (credit)	180	314	59	58	611
Interest income on plan assets[a]	(1,259)	(274)	(78)	(56)	(1,667)
Interest on plan liabilities	869	297	194	66	1,426
Other finance (income) expense	(390)	23	116	10	(241)
Analysis of the amount recognized in other comprehensive income					
Actual asset return less interest income on plan assets	(677)	45	82	28	(522)
Change in financial assumptions underlying the present value of the plan liabilities	(649)	28	(508)	(24)	(1,153)
Change in demographic assumptions underlying the present value of the plan liabilities	(230)	(5)	8	–	(227)
Experience gains and losses arising on the plan liabilities	(320)	45	(84)	(1)	(360)
Remeasurements recognized in other comprehensive income	(1,876)	113	(502)	3	(2,262)
Movements in benefit obligation during the year					
Benefit obligation at 1 January	17,480	5,880	4,799	1,343	29,502
Exchange adjustments	1,056	–	215	30	1,301
Operating charge relating to defined benefit plans	48	156	52	22	278
Interest cost	869	297	194	66	1,426
Contributions by plan participants	6	–	2	5	13
Benefit payments (funded plans)[c]	(1,071)	(262)	(79)	(81)	(1,493)
Benefit payments (unfunded plans)[c]	(8)	(166)	(230)	(25)	(429)
Reclassified as assets held for sale	–	–	–	(14)	(14)
Remeasurements	1,199	(68)	584	25	1,740
Benefit obligation at 31 December[a d]	19,579	5,837	5,537	1,371	32,324
Movements in fair value of plan assets during the year					
Fair value of plan assets at 1 January	25,047	5,417	1,877	1,186	33,527
Exchange adjustments	1,462	–	81	39	1,582
Interest income on plan assets[a e]	1,259	274	78	56	1,667
Contributions by plan participants	6	–	2	5	13
Contributions by employers (funded plans)	20	–	11	11	42
Benefit payments (funded plans)[c]	(1,071)	(262)	(79)	(81)	(1,493)
Remeasurements[e]	(677)	45	82	28	(522)
Fair value of plan assets at 31 December[f]	26,046	5,474	2,052	1,244	34,816
Surplus (deficit) at 31 December	6,467	(363)	(3,485)	(127)	2,492
Represented by					
Asset recognized	6,631	1,133	120	64	7,948
Liability recognized	(164)	(1,496)	(3,605)	(191)	(5,456)
	6,467	(363)	(3,485)	(127)	2,492
The surplus (deficit) may be analysed between funded and unfunded plans as follows					
Funded	6,631	1,133	104	29	7,897
Unfunded	(164)	(1,496)	(3,589)	(156)	(5,405)
	6,467	(363)	(3,485)	(127)	2,492
The defined benefit obligation may be analysed between funded and unfunded plans as follows					
Funded	(19,415)	(4,341)	(1,948)	(1,215)	(26,919)
Unfunded	(164)	(1,496)	(3,589)	(156)	(5,405)
	(19,579)	(5,837)	(5,537)	(1,371)	(32,324)

[a] The costs of managing plan investments are offset against the investment return, the costs of administering pension plan benefits are generally included in current service cost and the costs of administering other post-retirement benefit plans are included in the benefit obligation. Following the closure of the primary UK pension plan to future accrual, current service cost in the UK consists of $34 million of costs of administering that plan and $10 million of current service cost from the remaining small worldwide plans administered and reported through the UK.

[b] Past service costs predominantly represent largely offsetting income and costs due to the removal of some benefits for members in Turkish plans and their replacement with new arrangements administered and reported through the UK. There was also a $5 million past service cost in France relating to statutory retirement age changes. Settlements represent charges for special termination benefits arising as a result of early retirements.

[c] The benefit payments amount shown above comprises $1,858 million benefits and $10 million settlements, plus $54 million of plan expenses incurred in the administration of the benefit.

[d] The benefit obligation for the US is made up of $4,527 million for pension liabilities and $1,310 million for other post-retirement benefit liabilities (which are unfunded and are primarily retiree medical liabilities). The benefit obligation for the Eurozone includes $3,393 million for pension liabilities in Germany which is largely unfunded.

[e] The actual return on plan assets is made up of the sum of the interest income on plan assets and the remeasurement of plan assets as disclosed above.

[f] The fair value of plan assets includes borrowings related to the LDI programme as described on page 214.

24. Pensions and other post-retirement benefits – continued

					$ million
					2022
	UK	US	Eurozone	Other	Total
Analysis of the amount charged to profit or loss					
Current service cost[a]	41	219	87	25	372
Past service cost[b]	23	–	(1)	(21)	1
Settlement[b]	(8)	–	–	(4)	(12)
Operating charge (credit) relating to defined benefit plans	56	219	86	–	361
Payments to defined contribution plans	110	132	6	36	284
Total operating charge (credit)	166	351	92	36	645
Interest income on plan assets[a]	(694)	(189)	(34)	(44)	(961)
Interest on plan liabilities	529	217	85	61	892
Other finance (income) expense	(165)	28	51	17	(69)
Analysis of the amount recognized in other comprehensive income					
Actual asset return less interest income on plan assets	(12,955)	(1,581)	(507)	(151)	(15,194)
Change in financial assumptions underlying the present value of the plan liabilities	11,531	2,195	1,903	221	15,850
Change in demographic assumptions underlying the present value of the plan liabilities	47	–	(14)	(15)	18
Experience gains and losses arising on the plan liabilities	(146)	(15)	(159)	(14)	(334)
Remeasurements recognized in other comprehensive income	(1,523)	599	1,223	41	340
Movements in benefit obligation during the year					
Benefit obligation at 1 January	32,834	8,273	7,108	1,652	49,867
Exchange adjustments	(3,224)	–	(443)	(68)	(3,735)
Operating charge relating to defined benefit plans	56	219	86	–	361
Interest cost	529	217	85	61	892
Contributions by plan participants	9	–	2	4	15
Benefit payments (funded plans)[c]	(1,211)	(364)	(78)	(79)	(1,732)
Benefit payments (unfunded plans)[c]	(7)	(285)	(229)	(23)	(544)
Reclassified as assets held for sale	–	–	–	(12)	(12)
Disposals	(74)	–	(2)	–	(76)
Remeasurements	(11,432)	(2,180)	(1,730)	(192)	(15,534)
Benefit obligation at 31 December[a d]	17,480	5,880	4,799	1,343	29,502
Movements in fair value of plan assets during the year					
Fair value of plan assets at 1 January	42,844	7,173	2,537	1,412	53,966
Exchange adjustments	(4,258)	–	(156)	(52)	(4,466)
Interest income on plan assets[a e]	694	189	34	44	961
Contributions by plan participants	9	–	2	4	15
Contributions by employers (funded plans)	10	–	45	19	74
Benefit payments (funded plans)[c]	(1,211)	(364)	(78)	(79)	(1,732)
Reclassified as assets held for sale	–	–	–	(11)	(11)
Disposals	(86)	–	–	–	(86)
Remeasurements[e]	(12,955)	(1,581)	(507)	(151)	(15,194)
Fair value of plan assets at 31 December[f]	25,047	5,417	1,877	1,186	33,527
Surplus (deficit) at 31 December	7,567	(463)	(2,922)	(157)	4,025
Represented by					
Asset recognized	7,716	1,227	256	70	9,269
Liability recognized	(149)	(1,690)	(3,178)	(227)	(5,244)
	7,567	(463)	(2,922)	(157)	4,025
The surplus (deficit) may be analysed between funded and unfunded plans as follows					
Funded	7,716	1,227	238	39	9,220
Unfunded	(149)	(1,690)	(3,160)	(196)	(5,195)
	7,567	(463)	(2,922)	(157)	4,025
The defined benefit obligation may be analysed between funded and unfunded plans as follows					
Funded	(17,331)	(4,190)	(1,639)	(1,147)	(24,307)
Unfunded	(149)	(1,690)	(3,160)	(196)	(5,195)
	(17,480)	(5,880)	(4,799)	(1,343)	(29,502)

[a] The costs of managing plan investments are offset against the investment return, the costs of administering pension plan benefits are generally included in current service cost and the costs of administering other post-retirement benefit plans are included in the benefit obligation. Following the closure of the primary UK pension plan to future accrual, current service cost in the UK consists of $30 million of costs of administering that plan and $11 million of current service cost from the remaining small worldwide plans administered and reported through the UK.

[b] Past service costs predominantly represent largely offsetting income and costs due to the removal of some benefits for members in Turkish plans and their replacement with new arrangements administered and reported through the UK. Settlements reflect costs associated with buyouts in Canada and in certain other small worldwide plans administered and reported through the UK.

[c] The benefit payments amount shown above comprises $2,217 million benefits and $8 million settlements, plus $51 million of plan expenses incurred in the administration of the benefit.

[d] The benefit obligation for the US is made up of $4,411 million for pension liabilities and $1,469 million for other post-retirement benefit liabilities (which are unfunded and are primarily retiree medical liabilities). The benefit obligation for the Eurozone includes $2,992 million for pension liabilities in Germany which is largely unfunded.

[e] The actual return on plan assets is made up of the sum of the interest income on plan assets and the remeasurement of plan assets as disclosed above.

[f] The fair value of plan assets includes borrowings related to the LDI programme as described on page 214.

24. Pensions and other post-retirement benefits – continued

					$ million
					2021
	UK	US	Eurozone	Other	Total
Analysis of the amount charged to profit or loss					
Current service cost[a]	154	246	105	31	536
Past service cost[b]	(302)	–	(27)	2	(327)
Settlement[b]	–	–	(4)	(1)	(5)
Operating charge (credit) relating to defined benefit plans	(148)	246	74	32	204
Payments to defined contribution plans	76	136	7	36	255
Total operating charge (credit)	(72)	382	81	68	459
Interest income on plan assets[a]	(684)	(150)	(30)	(40)	(904)
Interest on plan liabilities	559	209	78	56	902
Other finance (income) expense	(125)	59	48	16	(2)
Analysis of the amount recognized in other comprehensive income					
Actual asset return less interest income on plan assets	2,440	749	12	25	3,226
Change in financial assumptions underlying the present value of the plan liabilities	(100)	777	233	97	1,007
Change in demographic assumptions underlying the present value of the plan liabilities	66	(41)	(15)	1	11
Experience gains and losses arising on the plan liabilities	7	173	(11)	3	172
Remeasurements recognized in other comprehensive income	2,413	1,658	219	126	4,416

[a] The costs of managing plan investments are offset against the investment return, the costs of administering pension plan benefits are generally included in current service cost and the costs of administering other post-retirement benefit plans are included in the benefit obligation.

[b] The past service credit in the UK represents curtailment gains arising from the closure of the primary pension plan in the UK to future accrual. For active members of that plan on 30 June 2021, benefits payable are now linked to salary as at that date. Past service credits and settlements in the Eurozone include $18 million of curtailments and settlements due to restructuring initiatives. Remaining past service cost and settlements represent charges for special termination benefits arising as a result of early retirements.

Sensitivity analysis

The discount rate, inflation and the mortality assumptions all have a significant effect on the amounts reported. A one-percentage point change, in isolation, in certain assumptions as at 31 December 2023 for the group's pensions and other post-retirement benefit expense would have had the effects shown in the tables below. The effects shown for the expense in 2024 comprise the total of current service cost and net finance income or expense.

						$ million
						One percentage point
	UK		US		Eurozone	
	Increase	Decrease	Increase	Decrease	Increase	Decrease
Discount rate[a]						
Effect on expense in 2024	**(197)**	**173**	**(40)**	**46**	**(8)**	**4**
Effect on obligation at 31 December 2023	**(2,259)**	**2,811**	**(449)**	**651**	**(608)**	**737**
Inflation rate[b]						
Effect on expense in 2024	**89**	**(83)**	**7**	**(6)**	**34**	**(29)**
Effect on obligation at 31 December 2023	**1,872**	**(1,738)**	**41**	**(35)**	**582**	**(503)**

[a] The amounts presented reflect that the discount rate is used to determine the asset interest income as well as the interest cost on the obligation.

[b] The amounts presented reflect the total impact of an inflation rate change on the assumptions for rate of increase in salaries, pensions in payment and deferred pensions.

			$ million
			One year increase
	UK	US	Eurozone
Longevity			
Effect on expense in 2024	**28**	**4**	**10**
Effect on obligation at 31 December 2023	**577**	**64**	**216**

Estimated future benefit payments and the weighted average duration of defined benefit obligations

The expected benefit payments, which reflect expected future service, as appropriate, but exclude plan expenses, and the weighted average duration of the defined benefit obligations at 31 December 2023 are as follows:

					$ million
Estimated future benefit payments	UK	US	Eurozone	Other	Total
2024	**1,169**	**474**	**332**	**88**	**2,063**
2025	**1,113**	**469**	**326**	**84**	**1,992**
2026	**1,126**	**456**	**318**	**85**	**1,985**
2027	**1,146**	**458**	**313**	**86**	**2,003**
2028	**1,159**	**441**	**308**	**86**	**1,994**
2029 - 2033	**5,958**	**2,204**	**1,454**	**440**	**10,056**
					Years
Weighted average duration	**12.9**	**9.3**	**12.9**	**11.4**	

25. Cash and cash equivalents

		$ million
	2023	2022
Cash	16,683	15,008
Triparty repos and term bank deposits	9,788	7,971
Other cash equivalents	6,559	6,216
	33,030	29,195

Cash and cash equivalents comprise cash in hand; current balances with banks and similar institutions; deposits and triparty repos of three months or less with banks and similar institutions; money market funds and treasury bills. The carrying amounts of cash, triparty repos, term bank deposits and treasury bills approximate their fair values. Substantially all of the other cash equivalents are categorized within level 1 of the fair value hierarchy.

Cash and cash equivalents at 31 December 2023 includes $5,282 million (2022 $5,866 million) that is restricted. The restricted cash balances include amounts required to cover initial margin on trading exchanges and certain cash balances which are subject to exchange controls.

The group holds $7,174 million (2022 $5,822 million) of cash and cash equivalents outside the UK and it is not expected that any significant tax will arise on repatriation.

26. Finance debt

						$ million
			2023			2022
	Current	Non-current	Total	Current	Non-current	Total
Borrowings	3,284	48,670	51,954	3,198	43,746	46,944

The main elements of current borrowings are the current portion of long-term borrowings that is due to be repaid in the next 12 months of $2,688 million (2022 $2,297 million) and issued commercial paper of $456 million (2022 $725 million). Finance debt does not include accrued interest of $495 million (2022 $409 million), which is reported within other payables. As part of actively managing its debt portfolio, during the year the group bought back $1.7 billion equivalent of finance debt consisting entirely of euro bonds (2022 $7.4 billion US dollar bonds). Derivatives associated with non-US dollar debt bought back were also terminated. These transactions have no significant impact on net debt or gearing.

The following table shows the weighted-average interest rates achieved through a combination of borrowings and derivative financial instruments entered into to manage interest rate and currency exposures.

			Fixed rate debt		Floating rate debt	Total
	Weighted average interest rate %	Weighted average time for which rate is fixed Years	Amount $ million	Weighted average interest rate %	Amount $ million	Amount $ million
						2023
US dollar	4	13	33,511	8	18,134	51,645
Other currencies	6	7	205	10	104	309
			33,716		18,238	51,954
						2022
US dollar	3	14	28,651	6	18,105	46,756
Other currencies	6	8	188	—	—	188
			28,839		18,105	46,944

Fair values

The estimated fair value of finance debt is shown in the table below together with the carrying amount as reflected in the balance sheet.

Long-term borrowings in the table below include the portion of debt that matures in the 12 months from 31 December 2023, whereas in the group balance sheet the amount is reported within current finance debt.

The carrying amount of the group's short-term borrowings, comprising mainly of commercial paper, approximates their fair value. The fair values of the significant majority of the group's long-term borrowings are determined using quoted prices in active markets, and so fall within level 1 of the fair value hierarchy. Where quoted prices are not available, quoted prices for similar instruments in active markets are used and such measurements are therefore categorized in level 2 of the fair value hierarchy.

				$ million
		2023		2022
	Fair value	Carrying amount	Fair value	Carrying amount
Short-term borrowings	596	596	901	901
Long-term borrowings	48,199	51,358	41,689	46,043
Total finance debt	48,795	51,954	42,590	46,944

27. Capital disclosures and net debt

The group defines capital as total equity plus net debt. Our financial framework seeks to support the pursuit of value growth for shareholders while maintaining a secure financial base.

The group monitors capital on the basis of gearing, that is, the ratio of net debt to the total of net debt plus total equity. Net debt is calculated as finance debt, as shown in the balance sheet, plus the fair value of associated derivative financial instruments that are used to hedge foreign exchange and interest rate risks relating to finance debt for which hedge accounting is applied, less cash and cash equivalents. Net debt and gearing are non-IFRS measures. bp believes these measures provide useful information to investors. Net debt enables investors to see the economic effect of finance debt, related hedges and cash and cash equivalents in total. Gearing enables investors to see how significant net debt is relative to total equity. The derivatives are reported on the balance sheet within the headings 'Derivative financial instruments'. All components of equity are included in the denominator of the calculation.

At 31 December 2023, gearing was 19.7% (2022 20.5%).

		$ million
At 31 December	2023	2022
Finance debt	51,954	46,944
Less: fair value asset (liability) of hedges related to finance debt[a]	(1,988)	(3,673)
	53,942	50,617
Less: cash and cash equivalents	33,030	29,195
Net debt	20,912	21,422
Total equity	85,493	82,990
Gearing	19.7%	20.5%

a Derivative financial instruments entered into for the purpose of managing interest rate and foreign currency exchange risk associated with net debt with a fair value liability position of $73 million (2022 liability of $91 million) are not included in the calculation of net debt shown above as hedge accounting was not applied for these instruments.

Certain subsidiaries in the group have externally imposed capital requirements and have been in compliance with these requirements throughout the year.

An analysis of changes in liabilities arising from financing activities is provided below.

					$ million
	Finance debt	Currency swaps[a]	Lease liabilities	Net partner payable for leases entered into on behalf of joint operations	Total liabilities arising from financing activities
At 1 January 2023	46,944	5,312	8,549	42	60,847
Exchange adjustments	33	—	132	1	166
Net financing cash flow	3,040	(213)	(2,560)	(22)	245
Fair value (gains) losses	1,389	(2,065)	—	—	(676)
New and remeasured leases/joint operations payables	—	—	4,956	10	4,966
Other movements[b]	548	(56)	44	(1)	535
At 31 December 2023	**51,954**	**2,978**	**11,121**	**30**	**66,083**
At 1 January 2022	61,176	481	8,611	250	70,518
Exchange adjustments	(164)	—	(260)	1	(423)
Net financing cash flow	(10,855)	(192)	(1,961)	(29)	(13,037)
Fair value (gains) losses	(3,694)	5,023	—	—	1,329
New and remeasured leases/joint operations payables	—	—	2,367	21	2,388
Other movements[c]	481	—	(208)	(201)	72
At 31 December 2022	46,944	5,312	8,549	42	60,847

a Currency swaps include cross currency interest rate swaps.
b 2023 other movements in finance debt include $545 million acquired with TravelCenters of America.
c 2022 other movements in finance debt include $1,044 million acquired with Archaea Energy Inc. and a non-cash reduction in balances related to the Alaska divestment. Other movements in the net partner payable for leases entered into on behalf of joint operations primarily represent transfers to amounts held for sale.

The finance debt and currency swap balances above do not include accrued interest, which is reported within other receivables and other payables on the balance sheet and for which the associated cash flows are presented as operating cash flows in the group cash flow statement. The currency swaps are reported on the balance sheet within the headings 'Derivative financial instruments' and are subsets of both derivatives held for trading and derivatives designated in fair value hedge relationships as detailed in Note 30. When hedge accounting is applied to these derivatives they are included in the calculation of net debt shown above.

In addition to the liabilities included in the table above the group has accrued $746 million (2022 $497 million) at the balance sheet date for shares repurchased between the end of the reporting period and 6 February 2024. $7,918 million (2022 $9,996 million) is included in financing activities in the group cash flow statement for the cash used to repurchase shares during the year.

28. Leases

The group leases a number of assets as part of its activities. This primarily includes drilling rigs in the oil production & operations and gas & low carbon energy segments and retail service stations, oil depots and storage tanks in the customer & products segment as well as office accommodation and vessel charters across the group. The weighted-average remaining lease term for the total lease portfolio is around 7 years (2022 7 years). Some leases have payments that vary with market interest or inflation rates. Certain leases contain residual value guarantees, which may be triggered in certain circumstances such as if market values have significantly declined at the conclusion of the lease.

The table below shows the timing of the undiscounted cash outflows for the lease liabilities included on the balance sheet.

		$ million
	2023	2022
Undiscounted lease liability cash flows due:		
Within 1 year	**3,038**	2,348
1 to 2 years	**2,177**	1,728
2 to 3 years	**1,386**	1,232
3 to 4 years	**1,139**	740
4 to 5 years	**947**	632
5 to 10 years	**3,045**	1,909
Over 10 years	**1,348**	1,275
	13,080	9,864
Impact of discounting	**(1,959)**	(1,315)
Lease liabilities at 31 December	**11,121**	8,549
Of which – current	**2,650**	2,102
– non-current	**8,471**	6,447

The group may enter into lease arrangements a number of years before taking control of the underlying asset due to construction lead times or to secure future operational requirements. The total undiscounted amount for future commitments for leases not yet commenced as at 31 December 2023 is $5,507 million (2022 $5,360 million). The majority of this future commitment relates to the floating LNG vessel to service the Greater Tortue Ahmeyim project from 2025.

		$ million
	2023	2022
Total cash outflow for amounts included in lease liabilities[a]	**2,904**	2,200
Expense for variable payments not included in the lease liability[a]	**27**	27
Short-term lease expense[a]	**657**	482
Additions to right-of-use assets in the period	**5,015**	2,451

[a] The cash outflows for amounts not included in lease liabilities approximate the income statement expenses disclosed above.

An analysis of right-of-use assets and depreciation is provided in Note 12. An analysis of lease interest expense is provided in Note 7.

29. Financial instruments and financial risk factors

The accounting classification of each category of financial instruments and their carrying amounts are set out below.

					$ million
At 31 December 2023	Note	Measured at amortized cost	Mandatorily measured at fair value through profit or loss	Derivative hedging instruments	Total carrying amount
Financial assets					
Other investments	18	**26**	**3,006**	**–**	**3,032**
Loans		**1,725**	**457**	**–**	**2,182**
Trade and other receivables	20	**31,354**	**–**	**–**	**31,354**
Derivative financial instruments	30	**–**	**22,444**	**119**	**22,563**
Cash and cash equivalents	25	**27,804**	**5,226**	**–**	**33,030**
Financial liabilities					
Trade and other payables	22	**(65,516)**	**–**	**–**	**(65,516)**
Derivative financial instruments	30	**–**	**(13,545)**	**(2,107)**	**(15,652)**
Accruals		**(7,837)**	**–**	**–**	**(7,837)**
Lease liabilities	28	**(11,121)**	**–**	**–**	**(11,121)**
Finance debt	26	**(51,954)**	**–**	**–**	**(51,954)**
		(75,519)	**17,588**	**(1,988)**	**(59,919)**

29. Financial instruments and financial risk factors – continued

At 31 December 2022	Note	Measured at amortized cost	Mandatorily measured at fair value through profit or loss	Derivative hedging instruments	Total carrying amount
					$ million
Financial assets					
Other investments	18	26	3,222	–	3,248
Loans		1,245	341	–	1,586
Trade and other receivables	20	33,535	–	–	33,535
Derivative financial instruments	30	–	24,395	–	24,395
Cash and cash equivalents	25	25,611	3,584	–	29,195
Financial liabilities					
Trade and other payables	22	(69,586)	–	–	(69,586)
Derivative financial instruments	30	–	(22,481)	(3,674)	(26,155)
Accruals		(7,631)	–	–	(7,631)
Lease liabilities	28	(8,549)	–	–	(8,549)
Finance debt	26	(46,944)	–	–	(46,944)
		(72,293)	9,061	(3,674)	(66,906)

The fair value of finance debt is shown in Note 26. For all other financial instruments within the scope of IFRS 9, the carrying amount is either the fair value, or approximates the fair value.

Information on gains and losses on derivative financial assets and financial liabilities classified as measured at fair value through profit or loss is provided in the derivative gains and losses section of Note 30. Fair value gains and losses related to other assets and liabilities classified as measured at fair value through profit or loss totalled a net loss of $11 million (2022 net loss of $238 million and 2021 net gain of $627 million). Dividend income of $18 million (2022 $14 million and 2021 $11 million) from investments in equity instruments classified as measured at fair value through profit or loss is presented within other income.

Interest income and expenses arising on financial instruments are disclosed in Note 7.

Financial risk factors

The group is exposed to a number of different financial risks arising from ordinary business exposures as well as its use of financial instruments including market risks relating to commodity prices; foreign currency exchange rates and interest rates; credit risk; and liquidity risk.

The group financial risk committee (GFRC) advises the chief financial officer (CFO) who oversees the management of these risks. The GFRC is chaired by the CFO and consists of a group of senior managers including the EVP trading and shipping and SVPs treasury, tax, accounting reporting control and planning & performance management. The purpose of the committee is to advise on financial risks and the appropriate financial risk governance framework for the group. The committee provides assurance to the CFO and the chief executive officer (CEO), and via the CEO to the board, that the group's financial risk-taking activity is governed by appropriate policies and procedures and that financial risks are identified, measured and managed in accordance with group policies and group risk appetite.

The group's trading activities in the oil, natural gas, LNG and power markets are managed within the trading and shipping business. Treasury holds foreign exchange and interest-rate products in the financial markets to hedge group exposures related to debt and hybrid bond issuance; the compliance, control and risk management processes for these activities are managed within the treasury business. All other foreign exchange and interest rate activities within financial markets are performed within the trading and shipping business and are also underpinned by the compliance, control and risk management infrastructure common to the activities of bp's trading and shipping business. All derivative activity is carried out by specialist teams that have the appropriate skills, experience and supervision. These teams are subject to close financial and management control.

The trading and shipping business maintains formal governance processes that provide oversight of market risk, credit risk and operational risk associated with trading activity. A policy and risk committee approves value-at-risk delegations, reviews incidents and validates risk-related policies, methodologies and procedures. A commitments committee approves the trading of new products, instruments and strategies and material commitments.

In addition, the trading and shipping business undertakes derivative activity for risk management purposes under a control framework as described more fully below.

(a) Market risk

Market risk is the risk or uncertainty arising from possible market price movements and their impact on the future performance of a business. The primary commodity price risks that the group is exposed to include oil, natural gas and power prices that could adversely affect the value of the group's financial assets, liabilities or expected future cash flows. The group has developed a control framework aimed at managing the volatility inherent in certain of its ordinary business exposures. In accordance with the control framework the group enters into various transactions using derivatives for risk management purposes.

The major components of market risk are commodity price risk, foreign currency exchange risk and interest rate risk, each of which is discussed below.

(i) Commodity price risk

The group's trading and shipping business is responsible for delivering value across the overall crude, oil products, gas, LNG and power supply chains. As such, it routinely enters into spot and term physical commodity contracts in addition to optimising physical storage, pipeline and transportation capacity. These activities expose the group to commodity price risk which is managed by entering into oil, natural gas and power swaps, options and futures.

The group measures market risk exposure arising from its trading positions in liquid periods using value-at-risk techniques based on Monte Carlo simulation models. These techniques make a statistical assessment of the market risk arising from possible future changes in market prices over a one-day holding period within a 95% confidence level. Trading activity occurring in liquid periods is subject to value-at-risk and other limits for each trading

29. Financial instruments and financial risk factors – continued

activity and the aggregate of all trading activity. The calculation of potential changes in value within the liquid period considers positions, historical price movements and the correlation of these price movements. Models are regularly reviewed against actual fair value movements to ensure integrity is maintained. The value-at-risk measure is supplemented by stress testing and scenario analysis through simulating the financial impact of certain physical, economic and geo-political scenarios. The value-at-risk measure in respect of the aggregated trading positions in liquid periods at 31 December 2023 was $26 million (2022 $63 million) whereas the average value-at-risk measure for the period was $49 million (2022 $89 million). This measure incorporates the effect of diversification reflecting the offsetting risks across the trading portfolio. Alternative measures are used to monitor exposures which are outside of liquid periods and for which value-at-risk techniques are not appropriate.

(ii) Foreign currency exchange risk

Since bp has global operations, fluctuations in foreign currency exchange rates can have a significant effect on the group's reported results and future expenditure commitments. The effects of most exchange rate fluctuations are absorbed in business operating results through changing cost competitiveness, lags in market adjustment to movements in rates and translation differences accounted for on specific transactions. For this reason, the total effect of exchange rate fluctuations is not identifiable separately in the group's reported results. The main underlying economic currency of the group's cash flows is the US dollar. This is because bp's major product, oil, is priced internationally in US dollars. bp's foreign currency exchange management policy is to limit economic and material transactional exposures arising from currency movements against the US dollar. The group co-ordinates the handling of foreign currency exchange risks centrally, by netting off naturally-occurring opposite exposures wherever possible and then managing any material residual foreign currency exchange risks.

Most of the group's borrowings are in US dollars or are hedged with respect to the US dollar. At 31 December 2023, the total foreign currency borrowings not swapped into US dollars amounted to $309 million (2022 $188 million). The group also has in issue perpetual subordinated hybrid bonds in euro, sterling and US dollars. Whilst the contractual terms of these instruments allow the group to defer coupon payments and the repayment of principal indefinitely, the group has chosen to manage the foreign currency exposure relating to the non-US dollar hybrid bonds to their respective first call periods.

The group manages the net residual foreign currency exposures by constantly reviewing the foreign currency economic value at risk and aims to manage such risk to keep the 12-month foreign currency value at risk below $400 million. At no point over the past three years did the value at risk exceed the maximum risk limit. A continuous assessment is made in respect of the group's foreign currency exposures to capture hedging requirements.

During the year, hedge accounting was applied to foreign currency exposure to highly probable forecast capital expenditure commitments. The group fixes the US dollar cost of non-US dollar supplies by using currency forwards for the highly probable forecast capital expenditure. At 31 December 2023 the most significant open contracts in place were for USD equivalent amounts of $296 million sterling and $22 million Euro (2022 $5 million sterling).

Where the group enters into foreign currency exchange contracts for entrepreneurial trading purposes the activity is controlled using trading value-at-risk techniques as explained in (i) commodity price risk above.

(iii) Interest rate risk

bp is also exposed to interest rate risk from the possibility that changes in interest rates will affect future cash flows or the fair values of its financial instruments, principally finance debt. While the group issues debt and hybrid bonds in a variety of currencies based on market opportunities, it uses derivatives to swap the economic exposure to a floating rate basis, mainly to US dollar floating, but in certain defined circumstances maintains a US dollar fixed rate exposure for a proportion of debt. The proportion of floating rate debt net of interest rate swaps at 31 December 2023 was 35% of total finance debt outstanding (2022 39%). The weighted average interest rate on finance debt at 31 December 2023 was 5% (2022 4%) and the weighted average maturity of fixed rate debt was thirteen years (2022 fourteen years).

The group's earnings are sensitive to changes in interest rates on the element of the group's finance debt that is contractually floating rate or has been swapped to floating rates (see Note 26). If the interest rates applicable to these floating rate instruments were to have changed by one percentage point on 1 January 2024, it is estimated that the group's finance costs for 2024 would change by approximately $182 million (2022 $181 million).

Prior to June 2023, the main benchmark interest rate to which bp was exposed was 3 month USD LIBOR, primarily in relation to finance debt and derivative contracts. During 2023, bp's internal working group for IBOR reform continued to monitor market developments and managed the transition to alternative benchmark rates. Publication of USD LIBOR tenors, including 3 month USD LIBOR, ceased from 30 June 2023.

Finance debt exposed to IBOR benchmark rates was renegotiated with relevant counterparties and transitioned to reference alternative risk free benchmarks. Amendments to finance debt terms arising were limited only to changes necessary to ensure economic equivalence with the former interest benchmarks, for example credit spread adjustments to the contractual interest rates.

Derivatives that previously referenced USD LIBOR also transitioned to referencing the Secured Overnight Financing Rate (SOFR) via the International Swaps and Derivatives Association (ISDA) fallback protocol. The derivatives comprise relevant derivative contracts hedging finance debt and hybrid bonds. In October 2020 the ISDA published its fallback protocol containing clauses to amend derivative contracts on the cessation of LIBOR should an entity and its counterparties adhere to the protocol. The protocol's pricing mechanism is at fair market value and bp has signed up to the protocol as this removes transition uncertainty for any interest rate and cross-currency interest rate swap contracts of the group. New contracts are being executed based on the new risk free rates. As at 31 December 2023, bp has no remaining contractual exposure to interest rate benchmark reform.

(b) Credit risk

Credit risk is the risk that a customer or counterparty to a financial instrument will fail to perform or fail to pay amounts due causing financial loss to the group and arises from cash and cash equivalents, derivative financial instruments and deposits with financial institutions and principally from credit exposures to customers relating to outstanding receivables. Credit exposure also exists in relation to guarantees issued by group companies under which the outstanding exposure incremental to that recognized on the balance sheet at 31 December 2023 was $1,655 million (2022 $1,704 million) in respect of liabilities of joint ventures and associates and $598 million (2022 $680 million) in respect of liabilities of other third parties. An amount of $201 million (2022 $267 million) is recorded as a liability at 31 December 2023 in relation to these guarantees. For all guarantees, maturity dates vary, and the guarantees will terminate on payment and/or cancellation of the obligation. In general, a payment under the guarantee contract would be triggered by failure of the guaranteed party to fulfil its obligation covered by the guarantee.

29. Financial instruments and financial risk factors – continued

The group has a credit policy, approved by the CFO, that is designed to ensure that consistent processes are in place throughout the group to measure and control credit risk. Credit risk is considered as part of the risk-reward balance of doing business. On entering into any business contract the extent to which the arrangement exposes the group to credit risk is considered. Key requirements of the policy include segregation of credit approval authorities from any sales, marketing or trading teams authorized to incur credit risk; the establishment of credit systems and processes to ensure that all counterparty exposure is rated and that all counterparty exposure and limits can be monitored and reported; and the timely identification and reporting of any non-approved credit exposures and credit losses. While each segment is responsible for its own credit risk management and reporting consistent with group policy, treasury holds group-wide credit risk authority and oversight responsibility for exposure to banks and financial institutions.

For the purposes of financial reporting the group calculates expected loss allowances based on the maximum contractual period over which the group is exposed to credit risk. Lifetime expected credit losses are recognized for trade receivables and the credit risk associated with the significant majority of financial assets measured at amortized cost is considered to be low. Since the tenor of substantially all of the group's in-scope financial assets is less than 12 months there is no significant difference between the measurement of 12-month and lifetime expected credit losses. Expected loss allowances for financial guarantee contracts are typically lower than their initial fair value less, where appropriate, amortization. Financial assets are considered to be credit-impaired when there is reasonable and supportable evidence that one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred. This includes observable data concerning significant financial difficulty of the counterparty; a breach of contract; concession being granted to the counterparty for economic or contractual reasons relating to the counterparty's financial difficulty, that would not otherwise be considered; it becoming probable that the counterparty will enter bankruptcy or other financial re-organization or an active market for the financial asset disappearing because of financial difficulties. The group also applies a rebuttable presumption that an asset is credit-impaired when contractual payments are more than 30 days past due. Where the group has no reasonable expectation of recovering a financial asset in its entirety or a portion thereof, for example where all legal avenues for collection of amounts due have been exhausted, the financial asset (or relevant portion) is written off.

The measurement of expected credit losses is a function of the probability of default, loss given default (i.e. the magnitude of the loss after recovery if there is a default) and the exposure at default (i.e. the asset's carrying amount). The group allocates a credit risk rating to exposures based on data that is determined to be predictive of the risk of loss, including but not limited to external ratings. Probabilities of default derived from historical, current and future-looking market data are assigned by credit risk rating with a loss given default based on historical experience and relevant market and academic research applied by exposure type. Experienced credit judgement is applied to ensure probabilities of default are reflective of the credit risk associated with the group's exposures. Credit enhancements that would reduce the group's credit losses in the event of default are reflected in the calculation when they are considered integral to the related asset.

The maximum credit exposure associated with financial assets is equal to the carrying amount. The group does not aim to remove credit risk entirely but expects to experience a certain level of credit losses. As at 31 December 2023, the group had in place credit enhancements designed to mitigate approximately $12.0 billion (2022 $12.6 billion) of credit risk of which approximately $10.7 billion (2022 $10.3 billion) related to assets in the scope of IFRS 9's impairment requirements. Credit enhancements include standby and documentary letters of credit, bank guarantees, insurance and liens which are typically taken out with financial institutions who have investment grade credit ratings, or are liens over assets held by the counterparty of the related receivables. Reports are regularly prepared and presented to the GFRC that cover the group's overall credit exposure and expected loss trends, exposure by segment, and overall quality of the portfolio.

Management information used to monitor credit risk, which reflects the impact of credit enhancements, indicates that the risk profile of financial assets which are subject to review for impairment under IFRS 9 is as set out in the table below.

		%
As at 31 December	**2023**	2022
AAA to AA-	**7 %**	9 %
A+ to A-	**59 %**	49 %
BBB+ to BBB-	**15 %**	15 %
BB+ to BB-	**7 %**	11 %
B+ to B-	**4 %**	12 %
CCC+ and below	**8 %**	4 %

Movements in the impairment provision for trade and other receivables are shown in Note 21.

29. Financial instruments and financial risk factors – continued

Financial instruments subject to offsetting, enforceable master netting arrangements and similar agreements

The following table shows the amounts recognized for financial assets and liabilities which are subject to offsetting arrangements on a gross basis, and the amounts offset in the balance sheet.

Amounts which cannot be offset under IFRS, but which could be settled net under the terms of master netting agreements if certain conditions arise, and collateral received or pledged, are also presented in the table to show the total net exposure of the group.

$ million

				Related amounts not set off in the balance sheet		
At 31 December 2023	Gross amounts of recognized financial assets (liabilities)	Amounts set off	Net amounts presented on the balance sheet	Master netting arrangements	Cash collateral (received) pledged	Net amount
Derivative assets	**25,188**	**(2,625)**	**22,563**	**(3,436)**	**(1,245)**	**17,882**
Derivative liabilities	**(18,277)**	**2,625**	**(15,652)**	**3,436**	**263**	**(11,953)**
Trade and other receivables	**17,867**	**(7,789)**	**10,078**	**(1,141)**	**(633)**	**8,304**
Trade and other payables	**(16,284)**	**7,789**	**(8,495)**	**1,141**	**44**	**(7,310)**
At 31 December 2022						
Derivative assets	33,199	(8,804)	24,395	(3,988)	(918)	19,489
Derivative liabilities	(34,918)	8,804	(26,114)	3,988	436	(21,690)
Trade and other receivables	17,947	(8,381)	9,566	(1,325)	(224)	8,017
Trade and other payables	(20,671)	8,381	(12,290)	1,325	61	(10,904)

(c) Liquidity risk

Liquidity risk is the risk that suitable sources of funding for the group's business activities may not be available. The group's liquidity is managed centrally with operating units forecasting their cash and currency requirements to the central treasury function. Unless restricted by local regulations, generally subsidiaries pool their cash surpluses to the treasury function, which will then arrange to fund other subsidiaries' requirements, or invest any net surplus in the market or arrange for necessary external borrowings, while managing the group's overall net currency positions. While there is the potential for concerns about the energy transition to impact banks' or debt investors' appetite to finance hydrocarbon activity, we do not anticipate any material change to the group's funding or liquidity in the short to medium term as a result of such concerns.

The group benefits from open credit provided by suppliers who generally sell on five to 60-day payment terms in accordance with industry norms. bp utilizes various arrangements in order to manage its working capital and reduce volatility in cash flow. This includes discounting of receivables and, in the supply and trading businesses, managing inventory, collateral and supplier payment terms within a maximum of 60 days.

It is normal practice in the oil and gas supply and trading business for customers and suppliers to utilize letter of credit (LC) facilities to mitigate credit and non-performance risk. Consequently, LCs facilitate active trading in a global market where credit and performance risk can be significant. In common with the industry, bp routinely provides LCs to some of its suppliers.

The group has committed LC facilities totalling $13,180 million (2022 $12,730 million), allowing LCs to be issued for a maximum 24-month duration. There were also uncommitted secured LC facilities in place at 31 December 2023 for $3,515 million (2022 $3,800 million), which are secured against inventories or receivables when utilized. The facilities are held with over 28 international banks. The uncommitted LC facilities can only be terminated by either party giving a stipulated termination notice to the other.

In certain circumstances, the supplier has the option to request accelerated payment from the LC provider in order to further reduce their exposure. bp's payments are made to the provider of the LC rather than the supplier according to the original contractual payment terms. At 31 December 2023, $9,955 million (2022 $9,520 million) of the group's trade payables subject to these arrangements were payable to LC providers, with no material exposure to any individual provider. If these facilities were not available, this could result in renegotiation of payment terms with suppliers such that settlement periods were shorter.

Standard & Poor's Ratings long-term credit rating for bp is A- (positive) and Moody's Investors Service rating is A2 (positive) and the Fitch Ratings' long-term credit rating is A+ (stable).

During 2023, $6 billion (2022 $2 billion) of long-term taxable bonds were issued with terms ranging from seven to 15 years. In addition the group drew down on perpetual hybrid capital instruments with a US dollar equivalent value of $0.2 billion (2022 $0.4 billion). Commercial paper is issued at competitive rates to meet short-term borrowing requirements as and when needed.

As a further liquidity measure, the group continues to maintain suitable levels of cash and cash equivalents, amounting to $33.0 billion at 31 December 2023 (2022 $29.2 billion), primarily invested with highly rated banks or money market funds and readily accessible at immediate and short notice. At 31 December 2023, the group had substantial amounts of undrawn borrowing facilities available, consisting of an undrawn committed $8.0 billion (2022 $8.0 billion) credit facility and $4.0 billion (2022 $4.0 billion) of standby facilities. As at 31 December 2023 $0.2 billion of the credit facility was available for one year and $7.8 billion was available for 2 years. As at 31 December 2023 $0.1 billion of the standby facilities were available for three years and $3.9 billion were available for four years. The facilities are with 27 international banks and borrowings under them would be at pre-agreed rates.

For further information on the group's sources and uses of cash see Liquidity and capital resources on page 340.

The group manages liquidity risk associated with derivative contracts, other than derivative hedging instruments, based on the expected maturities of both derivative assets and liabilities as indicated in Note 30. Management does not currently anticipate any cash flows, other than noted below, that could be of a significantly different amount or could occur earlier than the expected maturity analysis provided.

29. Financial instruments and financial risk factors – continued

The table below shows the timing of undiscounted cash outflows relating to finance debt, trade and other payables and accruals. As part of actively managing the group's debt portfolio it is possible that cash flows in relation to finance debt could be accelerated from the profile provided.

	2023				2022			$ million
	Trade and other payables[a]	Accruals	Finance debt	Interest on finance debt	Trade and other payables[a]	Accruals	Finance debt	Interest on finance debt[b]
Within one year	**56,852**	**6,527**	**3,054**	**2,394**	59,618	6,398	2,978	2,013
1 to 2 years	**1,876**	**329**	**3,820**	**2,151**	1,625	230	2,811	1,848
2 to 3 years	**1,158**	**147**	**4,767**	**1,907**	1,378	207	4,066	1,684
3 to 4 years	**1,178**	**135**	**5,367**	**1,666**	1,192	110	5,077	1,452
4 to 5 years	**1,141**	**121**	**5,778**	**1,396**	1,188	114	5,773	1,204
5 to 10 years	**5,028**	**382**	**12,939**	**4,894**	6,109	348	13,621	3,680
Over 10 years	**136**	**196**	**14,586**	**6,890**	772	224	13,135	6,968
	67,369	**7,837**	**50,311**	**21,298**	71,882	7,631	47,461	18,849

[a] 2023 includes $10,662 million (2022 $11,884 million) in relation to the Gulf of Mexico oil spill, of which $9,520 million (2022 $10,660 million) matures in greater than one year.
[b] Comparative amounts for interest on finance debt have been amended to align with current year presentation. The amendment has increased cash outflows by $3,022 million.

The table below shows the timing of cash outflows for derivative financial instruments entered into for the purpose of managing interest rate and foreign currency exchange risk, whether or not hedge accounting is applied, based upon contractual payment dates. As part of actively managing the group's debt portfolio it is possible that cash flows in relation to associated derivatives could be accelerated from the profile provided. The amounts reflect the gross settlement amount where the pay leg of a derivative will be settled separately from the receive leg, as in the case of cross-currency swaps hedging non-US dollar finance debt or hybrid bonds. The swaps are with high investment-grade counterparties and therefore the settlement-day risk exposure is considered to be negligible. Not shown in the table are the gross settlement amounts (inflows) for the receive leg of derivatives that are settled separately from the pay leg, which amount to $24,120 million at 31 December 2023 (2022 $23,970 million) to be received on the same day as the related cash outflows.

		$ million
Cash outflows for derivative financial instruments at 31 December	2023	2022
Within one year	**2,071**	1,492
1 to 2 years	**1,718**	2,531
2 to 3 years	**5,136**	2,053
3 to 4 years	**3,077**	5,575
4 to 5 years	**1,743**	3,584
5 to 10 years	**6,708**	7,627
Over 10 years	**4,092**	2,772
	24,545	25,634

For further information on our derivative financial instruments, see Note 30.

30. Derivative financial instruments

In the normal course of business the group enters into derivative financial instruments (derivatives) to manage its normal business exposures in relation to commodity prices, foreign currency exchange rates and interest rates, including management of the balance between floating rate and fixed rate debt, consistent with risk management policies and objectives. An outline of the group's financial risks and the objectives and policies pursued in relation to those risks is set out in Note 29. Additionally, the group has a well-established entrepreneurial trading operation that is undertaken in conjunction with these activities using a similar range of contracts.

For information on significant estimates and judgements made in relation to the valuation of derivatives see Derivative financial instruments within Note 1.

The fair values of derivative financial instruments at 31 December are set out below.

Exchange traded derivatives are valued using closing prices provided by the exchange as at the balance sheet date. These derivatives are categorized within level 1 of the fair value hierarchy. Exchange traded derivatives are typically considered settled through the (normally daily) payment or receipt of variation margin.

Over-the-counter (OTC) financial swaps, forwards and physical commodity sale and purchase contracts are generally valued using readily available information in the public markets and quotations provided by brokers and price index developers. These quotes are corroborated with market data and are categorized within level 2 of the fair value hierarchy.

In certain less liquid markets, or for longer-term contracts, forward prices are not as readily available. In these circumstances, OTC financial swaps and physical commodity sale and purchase contracts are valued using internally developed methodologies that consider historical relationships between various commodities, and that result in management's best estimate of fair value. These contracts are categorized within level 3 of the fair value hierarchy.

30. Derivative financial instruments – continued

Financial OTC and physical commodity options are valued using industry standard models that consider various assumptions, including quoted forward prices for commodities, time value, volatility factors, and contractual prices for the underlying instruments, as well as other relevant economic factors. The degree to which these inputs are observable in the forward markets determines whether the option is categorized within level 2 or level 3 of the fair value hierarchy.

				$ million
	2023		2022	
	Fair value asset	Fair value liability	Fair value asset	Fair value liability
Derivatives held for trading[a]				
Currency derivatives	**478**	**(1,511)**	634	(2,346)
Oil price derivatives	**1,859**	**(1,139)**	2,753	(1,961)
Natural gas price derivatives	**14,750**	**(6,708)**	15,437	(12,129)
Power price derivatives	**5,355**	**(4,187)**	5,527	(6,004)
Other derivatives	**2**	**–**	44	–
	22,444	**(13,545)**	24,395	(22,440)
Embedded derivatives				
Other embedded derivatives	**–**	**–**	–	(41)
	–	**–**	–	(41)
Cash flow hedges				
Currency forwards	**–**	**(1)**	–	–
	–	**(1)**	–	–
Fair value hedges				
Currency swaps	**119**	**(2,102)**	–	(3,670)
Interest rate swaps	**–**	**(4)**	–	(4)
	119	**(2,106)**	–	(3,674)
	22,563	**(15,652)**	24,395	(26,155)
Of which – current	**12,583**	**(5,250)**	11,554	(12,618)
– non-current	**9,980**	**(10,402)**	12,841	(13,537)

[a] Includes embedded derivatives for which the critical terms are matched by standalone derivatives that are also classified as held for trading.

Derivatives held for trading

The group maintains active trading positions in a variety of derivatives. The contracts may be entered into for risk management purposes, to satisfy supply requirements or for entrepreneurial trading. Certain contracts are classified as held for trading, regardless of their original business objective, and are recognized at fair value with changes in fair value recognized in the income statement. Trading activities are undertaken by using a range of contract types in combination to create incremental gains by arbitraging prices between markets, locations and time periods. The net of these exposures is monitored using market value-at-risk techniques as described in Note 29.

The following tables show further information on the fair value of derivatives and other financial instruments held for trading purposes.

Derivative assets held for trading have the following fair values and maturities.

							$ million
							2023
	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	Over 5 years	Total
Currency derivatives	**95**	**31**	**38**	**33**	**28**	**253**	**478**
Oil price derivatives	**1,423**	**206**	**81**	**52**	**41**	**56**	**1,859**
Natural gas price derivatives	**8,705**	**1,412**	**625**	**458**	**426**	**3,124**	**14,750**
Power price derivatives	**2,339**	**961**	**513**	**360**	**250**	**932**	**5,355**
Other derivatives	**–**	**–**	**–**	**–**	**–**	**2**	**2**
	12,562	**2,610**	**1,257**	**903**	**745**	**4,367**	**22,444**

							$ million
							2022
	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	Over 5 years	Total
Currency derivatives	536	14	10	10	9	55	634
Oil price derivatives	1,971	445	150	63	35	89	2,753
Natural gas price derivatives	7,157	3,740	749	442	316	3,033	15,437
Power price derivatives	1,848	1,317	623	376	291	1,072	5,527
Other derivatives	42	–	–	–	–	2	44
	11,554	5,516	1,532	891	651	4,251	24,395

30. Derivative financial instruments – continued

Derivative liabilities held for trading have the following fair values and maturities.

							$ million
							2023
	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	Over 5 years	Total
Currency derivatives	**(341)**	**(3)**	**(405)**	**(166)**	**(7)**	**(589)**	**(1,511)**
Oil price derivatives	**(1,047)**	**(61)**	**(14)**	**(4)**	**(1)**	**(12)**	**(1,139)**
Natural gas price derivatives	**(2,126)**	**(796)**	**(473)**	**(348)**	**(293)**	**(2,672)**	**(6,708)**
Power price derivatives	**(1,692)**	**(666)**	**(413)**	**(306)**	**(227)**	**(883)**	**(4,187)**
	(5,206)	**(1,526)**	**(1,305)**	**(824)**	**(528)**	**(4,156)**	**(13,545)**

							$ million
							2022
	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	Over 5 years	Total
Currency derivatives	(587)	(95)	(3)	(629)	(319)	(713)	(2,346)
Oil price derivatives	(1,615)	(318)	(23)	(4)	(1)	–	(1,961)
Natural gas price derivatives	(7,255)	(1,157)	(539)	(328)	(214)	(2,636)	(12,129)
Power price derivatives	(2,924)	(1,002)	(506)	(335)	(273)	(964)	(6,004)
	(12,381)	(2,572)	(1,071)	(1,296)	(807)	(4,313)	(22,440)

The following table shows the fair value of derivative assets and derivative liabilities held for trading, analysed by maturity period and by methodology of fair value estimation. This information is presented on a gross basis, that is, before netting by counterparty.

							$ million
							2023
	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	Over 5 years	Total
Fair value of derivative assets							
Level 1	**98**	**41**	**11**	**1**	**–**	**–**	**151**
Level 2	**12,802**	**1,857**	**557**	**236**	**124**	**130**	**15,706**
Level 3	**1,765**	**1,063**	**784**	**699**	**638**	**4,263**	**9,212**
	14,665	**2,961**	**1,352**	**936**	**762**	**4,393**	**25,069**
Less: netting by counterparty	**(2,103)**	**(351)**	**(95)**	**(33)**	**(17)**	**(26)**	**(2,625)**
	12,562	**2,610**	**1,257**	**903**	**745**	**4,367**	**22,444**
Fair value of derivative liabilities							
Level 1	**(70)**	**(44)**	**(11)**	**(1)**	**–**	**–**	**(126)**
Level 2	**(6,051)**	**(1,127)**	**(844)**	**(365)**	**(93)**	**(500)**	**(8,980)**
Level 3	**(1,188)**	**(706)**	**(545)**	**(491)**	**(452)**	**(3,682)**	**(7,064)**
	(7,309)	**(1,877)**	**(1,400)**	**(857)**	**(545)**	**(4,182)**	**(16,170)**
Less: netting by counterparty	**2,103**	**351**	**95**	**33**	**17**	**26**	**2,625**
	(5,206)	**(1,526)**	**(1,305)**	**(824)**	**(528)**	**(4,156)**	**(13,545)**
Net fair value	**7,356**	**1,084**	**(48)**	**79**	**217**	**211**	**8,899**

							$ million
							2022
	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	Over 5 years	Total
Fair value of derivative assets							
Level 1	207	17	19	4	–	–	247
Level 2	17,161	5,628	935	289	77	65	24,155
Level 3	1,525	1,014	783	659	601	4,215	8,797
	18,893	6,659	1,737	952	678	4,280	33,199
Less: netting by counterparty	(7,339)	(1,143)	(205)	(61)	(27)	(29)	(8,804)
	11,554	5,516	1,532	891	651	4,251	24,395
Fair value of derivative liabilities							
Level 1	(281)	(20)	(22)	(7)	–	–	(330)
Level 2	(18,116)	(2,901)	(702)	(915)	(437)	(805)	(23,876)
Level 3	(1,323)	(794)	(552)	(435)	(397)	(3,537)	(7,038)
	(19,720)	(3,715)	(1,276)	(1,357)	(834)	(4,342)	(31,244)
Less: netting by counterparty	7,339	1,143	205	61	27	29	8,804
	(12,381)	(2,572)	(1,071)	(1,296)	(807)	(4,313)	(22,440)
Net fair value	(827)	2,944	461	(405)	(156)	(62)	1,955

30. Derivative financial instruments – continued

Level 3 derivatives

The following table shows the changes during the year in the net fair value of derivatives held for trading purposes within level 3 of the fair value hierarchy.

						$ million
	Oil price	Natural gas price	Power price	Currency	Other	Total
Fair value contracts at 1 January 2023	28	905	(524)	61	44	514
Gains (losses) recognized in the income statement	79	19	379	161	29	667
Settlements	13	(320)	86	(3)	(71)	(295)
Transfers out of level 3	(13)	(5)	(61)	–	–	(79)
Net fair value of contracts at 31 December 2023	**107**	**599**	**(120)**	**219**	**2**	**807**
Deferred day-one gains (losses)						1,341
Derivative asset (liability)						**2,148**

						$ million
	Oil price	Natural gas price	Power price	Currency	Other	Total
Fair value contracts at 1 January 2022	199	534	40	(154)	10	629
Gains (losses) recognized in the income statement	17	508	334	215	34	1,108
Purchases[a]	–	(4)	(889)	–	–	(893)
Settlements	(73)	(210)	(32)	–	–	(315)
Transfers out of level 3	(115)	77	23	–	–	(15)
Net fair value of contracts at 31 December 2022	28	905	(524)	61	44	514
Deferred day-one gains (losses)						1,245
Derivative asset (liability)						1,759

[a] Primarily relates to the acquisition of EDF Energy Services.

The amount recognized in the income statement for the year relating to level 3 held-for-trading derivatives still held at 31 December 2023 was a $631 million gain (2022 $1,223 million gain related to derivatives still held at 31 December 2022).

Derivative gains and losses

The group enters into derivative contracts including futures, options, swaps and certain forward sales and forward purchases contracts, relating to both currency and commodity trading activities. Gains or losses arise on contracts entered into for risk management purposes, optimization activity and entrepreneurial trading. They also arise on certain contracts that are for normal procurement or sales activity for the group but that are required to be fair valued under accounting standards. These gains and losses are included within sales and other operating revenues in the income statement. Also included within this line item are gains and losses on inventory held for trading purposes. The total amount relating to all these items was a net gain of $19,786 million (2022 $7,829 million net gain). This number does not include gains and losses on the change in value of contracts which are not recognized under IFRS such as transportation and storage contracts, but does include the associated financially settled contracts. The net amounts for actual gains and losses relating to these derivative contracts and all related items therefore differ significantly from the amounts disclosed above.

As outlined in Note 1 - Significant estimate and judgement: derivative financial instruments, LNG contracts are only recognised in the financial statements when associated cargoes are lifted. The embedded value in these contracts is not recognised and is subject to underlying commodity price volatility, as observed during 2022 and 2023. bp realised significant profits in 2023 as LNG cargoes were delivered. bp generally price risk manages the exposure to LNG cargoes due for delivery in the near term where there is a liquid market. It does so on a portfolio basis using derivative instruments amongst other price risk management strategies. Under IFRS, these derivative instruments, which are subject to similar price volatility, are recorded at fair value through profit and loss at each reporting period, which creates an accounting mismatch in the financial statements between the accounting for LNG contracts and the derivatives used for risk management. For the year ended 31 December 2023, there were material gains recognized on the associated derivative positions due to the movement in the underlying commodity prices. For the year ended 31 December 2022, there were no material gains or losses recorded on the associated derivative positions. For additional information, details of management's internal measure of performance are given in the Group Performance Report on page 35 and on page 338.

The group also enters into derivative contracts relating to foreign currency risk management activities including contracts that the group has entered into to manage the foreign currency exposure relating to the non-US dollar hybrid bonds to their respective first call periods. The change in the unrealized value of these contracts was a net gain of $632 million (2022 $1,280 million net loss and 2021 $775 million net loss). Where the derivative is economically hedging finance debt, gains and losses on such derivative contracts are included within finance costs. Where the derivative is managing non-US hybrid bond exposure gains and loss are included within production and manufacturing expenses. Where these gains and losses arise on derivatives hedging finance debt they are largely offset by opposing net foreign exchange differences on retranslation of the associated non-US dollar debt. The net amounts for actual gains and losses relating to these derivative contracts and all related items therefore differ significantly from the amounts disclosed above.

Cash flow hedges

(i) Foreign currency risk of highly probable forecast capital expenditure

At 31 December 2023, the group held currency forwards designated as hedging instruments in cash flow hedge relationships of highly probable forecast non-US dollar capital expenditure. Note 29 outlines the group's approach to foreign currency exchange risk management. When the highly probable forecast capital expenditure designated as a hedged item occurs, a non-financial asset is recognized and is presented within the fixed asset section of the balance sheet.

The group claims hedge accounting only for the spot value of the currency exposure in line with the strategy to fix the volatility in the spot exchange rate element. The fair value on the instrument attributable to forward points and foreign currency basis spreads is taken immediately to the income statement.

30. Derivative financial instruments – continued

The group applies hedge accounting where there is an economic relationship between the hedged item and hedging instrument. The existence of an economic relationship is determined at inception and prospectively by comparing the critical terms of the hedging instrument and those of the hedged item. The group enters into hedging derivatives that match the currency and notional of the hedged items on a 1:1 hedge ratio basis. The hedge ratio is determined by comparing the notional amount of the derivative with the notional designated on the forecast transaction. The group determines the extent to which it hedges highly probable forecast capital expenditures on a project by project basis.

The group has identified the following sources of ineffectiveness, which are not expected to be material:

- counterparty's credit risk, the group mitigates counterparty credit risk by entering into derivative transactions with high credit quality counterparties; and
- differences in settlement timing between the derivative and hedged items. The latter impacts the discount factor used in the calculation of the hedge ineffectiveness. The group mitigates differences in timing between the derivatives and hedged items by applying a rolling strategy and by hedging currency pairs from stable economies. The group's cash flow hedge designations are highly effective as the sources of ineffectiveness identified are expected to result in minimal hedge ineffectiveness.

The group has not designated any net positions as hedged items in cash flow hedges of foreign currency risk.

(ii) Commodity price risk of highly probable forecast sales

During the period the group held Henry Hub NYMEX futures designated as hedging instruments in cash flow hedge relationships of certain highly probable forecast future sales. Henry Hub NYMEX futures are subject to daily settlement, where their fair value at the end of each day is required to be cash settled, such that the carrying amount of these hedging instruments within continuing hedge relationships is always zero at the end of each day.

The group is exposed to the variability in the gas price, but only applied hedge accounting to the risk of Henry Hub price movements for a percentage of future gas sales from its BPX Energy business.

The group applied hedge accounting in relation to these highly probable future sales where there was an economic relationship between the hedged item and hedging instrument. The existence of an economic relationship was determined at inception and prospectively by comparing the critical terms of the hedging instrument and those of the hedged item. The group entered into hedging derivatives that matched the notional amounts of the hedged items on a 1:1 hedge ratio basis. The hedge ratio was determined by comparing the notional amount of the derivative with the notional amount designated on the forecast transaction.

The hedge was highly effective due to the price index of the hedging instruments matching the price index of the hedged item. The group did not designate any net positions as hedged items in cash flow hedges of commodity price risk.

The tables below summarize the change in the fair value of hedging instruments and the hedged item used to calculate ineffectiveness in the period.

			$ million
	Change in fair value of hedging instrument used to calculate ineffectiveness	Change in fair value of hedged item used to calculate ineffectiveness	Hedge ineffectiveness recognized in profit or (loss)
At 31 December 2023			
Cash flow hedges			
Foreign exchange risk			
Highly probable forecast capital expenditure	**1**	**(1)**	**—**
Commodity price risk			
Highly probable forecast sales	**1,065**	**(1,065)**	**—**
At 31 December 2022			
Cash flow hedges			
Foreign exchange risk			
Highly probable forecast capital expenditure	—	—	—
Commodity price risk			
Highly probable forecast sales	(825)	825	—

30. Derivative financial instruments – continued

The tables below summarize the carrying amount and nominal amount of the derivatives designated as hedging instruments in cash flow hedge relationships.

	Carrying amount of hedging instrument		Nominal amounts of hedging instruments	
	Assets	Liabilities		
At 31 December 2023	$ million	$ million	$ million	mmBtu
Cash flow hedges				
Foreign exchange risk				
Highly probable forecast capital expenditure	**—**	**(1)**	**318**	
Commodity price risk				
Highly probable forecast sales	**—**	**—**		**(392)**
At 31 December 2022				
Cash flow hedges				
Foreign exchange risk				
Highly probable forecast capital expenditure	—	—	5	
Commodity price risk				
Highly probable forecast sales	—	—		(469)

All hedging instruments are presented within derivative financial instruments on the group balance sheet.

All of the nominal amount of hedging instruments at 31 December 2023 and 2022 relating to highly probable forecast capital expenditure matures within 12 months of the relevant balance sheet date. All of the nominal amount of hedging instruments at 31 December 2023 relating to highly probable forecast sales matures within 12 months (2022 349 mmBtu within 12 months and 120 mmBtu within one to two years) of the relevant balance sheet date.

The table below summarizes the weighted average exchange rates and the weighted average sales price in relation to the derivatives designated as hedging instruments in cash flow hedge relationships at 31 December.

	Weighted average price/rate			
	2023		2022	
At 31 December	**Forecast capital expenditure**	**Forecast sales**	Forecast capital expenditure	Forecast sales
Sterling/US dollar	**1.27**		1.25	
Euro/US dollar	**1.11**		—	
Henry Hub $/mmBtu		**4.02**		4.03

Fair value hedges

At 31 December 2023, the group held interest rate and cross-currency interest rate swap contracts as fair value hedges of the interest rate risk and foreign currency risk arising from group fixed rate debt issuances. Note 29 outlines the group's approach to interest rate and foreign currency exchange risk management. The interest rate swaps are used to convert US dollar denominated fixed rate borrowings into floating rate debt. The cross-currency interest rate swaps are used to convert sterling, euro, Swiss franc, Canadian dollar and Norwegian krone denominated fixed rate borrowings into US dollar floating rate debt. The group manages all risks derived from debt issuance, such as credit risk, however, the group applies hedge accounting only to certain components of interest rate and foreign currency risk in order to minimize hedge ineffectiveness. The interest rate and foreign currency exposures are identified and hedged on an instrument-by-instrument basis. For interest rate exposures, the group designates as a fair value hedge the benchmark interest rate component only. This is an observable and reliably measurable component of interest rate risk.

bp's fair value hedge accounting relationships have been directly affected by interest rate benchmark reform. Prior to 2023, the group's swaps which reference interest rates were primarily exposed to 3 month USD LIBOR. During 2023, all the swaps that previously referenced USD LIBOR transitioned to referencing SOFR through activation of the ISDA fallback clauses. The transition was enacted on an 'economically equivalent' basis. No other changes were made to the terms of swap contracts upon transition to SOFR. The hedge relationships were not discontinued and SOFR is now assessed as the hedged interest rate benchmark risk. The interest rate benchmark reform did not change the risk management strategy for fair value hedges. New derivative hedging instruments are being executed based on the new risk free rates.

For foreign currency exposures, the group excludes from the designation the foreign currency basis spread component implicit in the cross-currency interest rate swaps. This is separately calculated at hedge designation, is recognized in other comprehensive income over the life of the hedge and amortized to the income statement on a straight-line basis, in accordance with the group's policy on costs of hedging.

30. Derivative financial instruments – continued

The group applies hedge accounting where there is an economic relationship between the hedged item and the hedging instrument. The existence of an economic relationship is determined initially by comparing the critical terms of the hedging instrument and those of the hedged item and it is prospectively assessed using linear regression analysis. The group issues fixed rate debt and enters into interest rate and cross-currency interest rate swaps with critical terms that match those of the debt and on a 1:1 hedge ratio basis. The hedge ratio is determined by comparing the notional amount of the derivative with the notional amount of the debt. The hedge relationship is designated for the full term and notional value of the debt. Both the hedging instrument and the hedged item are expected to be held to maturity.

The group has identified the following sources of ineffectiveness, which are not expected to be material:

- derivative counterparty's credit risk which is not offset by the hedged item. This risk is mitigated by entering into derivative transactions only with high credit quality counterparties; and
- sensitivity to interest rate between the hedged item and the derivatives. This is driven by differences in payment frequencies between the instrument and the bond.

The tables below summarize the change in the fair value of hedging instruments and the hedged item used to calculate ineffectiveness in the period. The signage convention for changes in fair value presented in this table is consistent with that presented in Note 27.

			$ million
At 31 December 2023	Change in fair value of hedging instrument used to calculate ineffectiveness	Change in fair value of hedged item used to calculate ineffectiveness	Hedge ineffectiveness recognized in profit or (loss)
Fair value hedges			
Interest rate risk on finance debt	**–**	**–**	**–**
Interest rate and foreign currency risk on finance debt	**(1,417)**	**1,356**	**61**
At 31 December 2022			
Fair value hedges			
Interest rate risk on finance debt	26	(27)	1
Interest rate and foreign currency risk on finance debt	3,519	(3,495)	(24)

The tables below summarize the carrying amount of the derivatives designated as hedging instruments in fair value hedge relationships at 31 December.

			$ million
	Carrying amount of hedging instrument		Nominal amounts of hedging instruments
At 31 December 2023	Assets	Liabilities	
Fair value hedges			
Interest rate risk on finance debt	**–**	**(4)**	**387**
Interest rate and foreign currency risk on finance debt	**119**	**(2,102)**	**16,862**
At 31 December 2022			
Fair value hedges			
Interest rate risk on finance debt	–	(4)	368
Interest rate and foreign currency risk on finance debt	–	(3,670)	17,032

All hedging instruments are presented within derivative financial instruments on the group balance sheet and are categorized within level 2 of the fair value hierarchy. Ineffectiveness arising on fair value hedges is included within finance costs in the income statement.

30. Derivative financial instruments – continued

The tables below summarize the profile by tenor of the nominal amount of the derivatives designated as hedging instruments in fair value hedge relationships at 31 December.

								$ million
At 31 December 2023	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	5-10 years	Over 10 years	Total
Fair value hedges								
Interest rate risk on finance debt	**239**	**—**	**148**	**—**	**—**	**—**	**—**	**387**
Interest rate and foreign currency risk on finance debt	**1,857**	**1,716**	**1,933**	**1,441**	**1,741**	**4,164**	**4,010**	**16,862**
At 31 December 2022								
Fair value hedges								
Interest rate risk on finance debt	—	216	—	152	—	—	—	368
Interest rate and foreign currency risk on finance debt	1,307	2,238	1,971	2,244	1,845	4,869	2,558	17,032

The table below summarizes the weighted average floating interest rate and the weighted average exchange rates in relation to the derivatives designated as hedging instruments in fair value hedge relationships at 31 December.

At 31 December	2023		2022	
	Interest rate swaps	Cross-currency interest rate swaps	Interest rate swaps	Cross-currency interest rate swaps
Interest rate	**3.49 %**	**7.35 %**	2.48 %	6.23 %
Sterling/US dollar		**1.27**		1.36
Euro/US dollar		**1.13**		1.13
Canadian dollar/US dollar		**0.78**		0.78

The tables below summarize the carrying amount, and the accumulated fair value adjustments included within the carrying amount, of the hedged items designated in fair value hedge relationships at 31 December.

				$ million
	Carrying amount of hedged item	Accumulated fair value adjustment included in the carrying amount of hedged items		
At 31 December 2023	Liabilities	Assets	Liabilities	Discontinued hedges
Fair value hedges				
Interest rate risk on finance debt	**(426)**	**4**	**—**	**(237)**
Interest rate and foreign currency risk on finance debt	**(16,834)**	**1,512**	**—**	**—**
At 31 December 2022				
Fair value hedges				
Interest rate risk on finance debt	(422)	4	—	(337)
Interest rate and foreign currency risk on finance debt	(17,003)	2,312	—	—

The hedged item for all fair value hedges is presented within finance debt on the group balance sheet.

30. Derivative financial instruments – continued

Movement in reserves related to hedge accounting

The table below provides a reconciliation of the cash flow hedge and costs of hedging reserves on a pre-tax basis by risk category. The signage convention of this table is consistent with that presented in Note 32.

$ million

	Cash flow hedge reserve			Costs of hedging reserve	
	Highly probable forecast capital expenditure	Highly probable forecast sales	Purchase of equity	Interest rate and foreign currency risk on finance debt	Total
At 1 January 2023	–	(108)	–	(104)	(212)
Recognized in other comprehensive income					
Cash flow hedges marked to market	15	1,065	–	–	1,080
Cash flow hedges reclassified to the income statement - hedged item affected profit or loss	–	(428)	–	–	(428)
Costs of hedging marked to market	–	–	–	(67)	(67)
Costs of hedging reclassified to the income statement	–	–	–	(11)	(11)
	15	637	–	(78)	574
Cash flow hedges transferred to the balance sheet	(1)	–	–	–	(1)
At 31 December 2023	**14**	**529**	**–**	**(182)**	**361**

$ million

	Cash flow hedge reserve			Costs of hedging reserve	
	Highly probable forecast capital expenditure	Highly probable forecast sales	Purchase of equity[a]	Interest rate and foreign currency risk on finance debt	Total
At 1 January 2022	3	(134)	(651)	(190)	(972)
Recognized in other comprehensive income					
Cash flow hedges marked to market	(4)	(825)	–	–	(829)
Cash flow hedges reclassified to the income statement - hedged item affected profit or loss	–	851	651	–	1,502
Costs of hedging marked to market	–	–	–	61	61
Costs of hedging reclassified to the income statement	–	–	–	25	25
	(4)	26	651	86	759
Cash flow hedges transferred to the balance sheet	1	–	–	–	1
At 31 December 2022	–	(108)	–	(104)	(212)

[a] Relates to the acquisition of an 18.5% interest in Rosneft in 2013.

Substantially all of the cash flow hedge reserve balances at 31 December 2023 and amounts reclassified from these cash flow hedge reserves into profit or loss during the year relate to continuing hedge relationships. The amounts reclassified are presented in sales and other operating revenues in the income statement.

In 2022 all of the cash flow hedge reserve related to the purchase of equity was reclassified to the income statement following bp's decision to exit its shareholding in Rosneft. The amount reclassified is presented in net impairment and losses on sale of businesses and fixed assets in the 2022 income statement.

Costs of hedging relates to the foreign currency basis spreads of hedging instruments used to hedge the group's interest rate and foreign currency risk on debt which is a time-period related item.

31. Called-up share capital

The allotted, called up and fully paid share capital at 31 December was as follows:

Issued	2023 Shares thousand	2023 $ million	2022 Shares thousand	2022 $ million	2021 Shares thousand	2021 $ million
8% cumulative first preference shares of £1 each[a]	**7,233**	**12**	7,233	12	7,233	12
9% cumulative second preference shares of £1 each[a]	**5,473**	**9**	5,473	9	5,473	9
		21		21		21
Ordinary shares of 25 cents each						
At 1 January	**19,097,783**	**4,774**	20,778,082	5,194	21,449,782	5,362
Issue of new shares for employee share-based payment plans	**66,000**	**17**	55,000	14	35,001	9
Issue of new shares – other[b]	**–**	**–**	165,105	41	–	–
Repurchase of ordinary share capital	**(1,262,983)**	**(316)**	(1,900,404)	(475)	(706,701)	(177)
At 31 December	**17,900,800**	**4,475**	19,097,783	4,774	20,778,082	5,194
		4,496		4,795		5,215

[a] The nominal amount of 8% cumulative first preference shares and 9% cumulative second preference shares that can be in issue at any time shall not exceed £10,000,000 for each class of preference shares.
[b] 165 million new ordinary shares were issued in April 2022 as non-cash consideration for the acquisition of the public units of BP Midstream Partners LP.

Voting on substantive resolutions tabled at a general meeting is on a poll. On a poll, shareholders present in person or by proxy have two votes for every £5 in nominal amount of the first and second preference shares held and one vote for every ordinary share held. On a show-of-hands vote on other resolutions (procedural matters) at a general meeting, shareholders present in person or by proxy have one vote each.

In the event of the winding up of the company, preference shareholders would be entitled to a sum equal to the capital paid up on the preference shares, plus an amount in respect of accrued and unpaid dividends and a premium equal to the higher of (i) 10% of the capital paid up on the preference shares and (ii) the excess of the average market price of such shares on the London Stock Exchange during the previous six months over par value.

During 2023 the company repurchased 1,263 million ordinary shares for a total consideration of $7,918 million, including transaction costs of $43 million. All shares purchased were for cancellation. The repurchased shares represented 7.1% of ordinary share capital. A further 156 million ordinary shares were repurchased between the end of the reporting period and 16 February 2024, the latest practicable date before the completion of these financial statements, for a total cost of $922 million of which $746 million has been accrued at 31 December 2023. The number of shares in issue is reduced when shares are repurchased.

Treasury shares[a]

	2023 Shares thousand	2023 Nominal value $ million	2022 Shares thousand	2022 Nominal value $ million	2021 Shares thousand	2021 Nominal value $ million
At 1 January	**1,124,927**	**281**	1,137,457	283	1,187,650	296
Purchases for settlement of employee share plans	**24,688**	**6**	14,150	4	1,432	–
Issue of new shares for employee share-based payment plans	**71,039**	**19**	55,000	14	35,096	9
Shares re-issued for employee share-based payment plans	**(143,575)**	**(35)**	(81,680)	(20)	(86,721)	(22)
At 31 December	**1,077,079**	**271**	1,124,927	281	1,137,457	283
Of which – shares held in treasury by bp	**726,339**	**183**	940,571	235	1,037,201	259
– shares held in ESOP trusts	**350,704**	**88**	184,356	46	100,256	24
– shares held by bp's US share plan administrator[b]	**36**	**–**	–	–	–	–

[a] See Note 32 for definition of treasury shares.
[b] Held in the form of ADSs to meet the requirements of employee share-based payment plans in the US.

For each year presented, the balance of shares held in treasury by bp at 1 January represents 4.9% (2022 5.0% and 2021 5.2%) of the called-up ordinary share capital of the company.

During 2023, the movement in shares held in treasury by bp represented 1.1% (2022 less than 0.5% and 2021 less than 0.3%) of the ordinary share capital of the company.

32. Capital and reserves

	Share capital	Share premium account	Capital redemption reserve	Merger reserve	Total share capital and capital reserves
At 1 January 2023	**4,795**	**13,692**	**2,180**	**27,206**	**47,873**
Profit (loss) for the year	–	–	–	–	–
Items that may be reclassified subsequently to profit or loss					
Currency translation differences (including reclassifications)	–	–	–	–	–
Cash flow hedges and costs of hedging (including reclassifications)	–	–	–	–	–
Share of items relating to equity-accounted entities, net of tax	–	–	–	–	–
Items that will not be reclassified to profit or loss					
Remeasurements of the net pension and other post-retirement benefit liability or asset	–	–	–	–	–
Remeasurements of equity investments	–	–	–	–	–
Cash flow hedges that will subsequently be transferred to the balance sheet	–	–	–	–	–
Total comprehensive income	–	–	–	–	–
Dividends	–	–	–	–	–
Cash flow hedges transferred to the balance sheet, net of tax	–	–	–	–	–
Repurchases of ordinary share capital	**(316)**	–	**316**	–	–
Share-based payments, net of tax[a]	**17**	**123**	–	–	**140**
Share of equity-accounted entities' changes in equity, net of tax	–	–	–	–	–
Issue of perpetual hybrid bonds	–	–	–	–	–
Payments on perpetual hybrid bonds	–	–	–	–	–
Transactions involving non-controlling interests, net of tax	–	–	–	–	–
At 31 December 2023	**4,496**	**13,815**	**2,496**	**27,206**	**48,013**
At 1 January 2022	5,215	12,745	1,705	27,206	46,871
Profit (loss) for the year	–	–	–	–	–
Items that may be reclassified subsequently to profit or loss					
Currency translation differences (including reclassifications)[b]	–	–	–	–	–
Cash flow hedges and costs of hedging (including reclassifications)[c]	–	–	–	–	–
Share of items relating to equity-accounted entities, net of tax	–	–	–	–	–
Other	–	–	–	–	–
Items that will not be reclassified to profit or loss					
Remeasurements of the net pension and other post-retirement benefit liability or asset	–	–	–	–	–
Cash flow hedges that will subsequently be transferred to the balance sheet	–	–	–	–	–
Total comprehensive income	–	–	–	–	–
Dividends	–	–	–	–	–
Cash flow hedges transferred to the balance sheet, net of tax	–	–	–	–	–
Issue of ordinary share capital	41	779	–	–	820
Repurchases of ordinary share capital	(475)	–	475	–	–
Share-based payments, net of tax[a]	14	168	–	–	182
Issue of perpetual hybrid bonds	–	–	–	–	–
Payments on perpetual hybrid bonds	–	–	–	–	–
Transactions involving non-controlling interests, net of tax	–	–	–	–	–
At 31 December 2022	4,795	13,692	2,180	27,206	47,873

[a] Movements in treasury shares relate to employee share-based payment plans.
[b] Following bp's decision to exit its shareholding in Rosneft on 27 February 2022, $10,372 million was reclassified to the income statement.
[c] Following bp's decision to exit its shareholding in Rosneft on 27 February 2022 $651 million was reclassified to the income statement.

32. Capital and reserves – continued

$ million

	Treasury shares	Foreign currency translation reserve	Investments in equity instruments	Cash flow hedges	Costs of hedging	Total fair value reserves	Profit and loss account	bp shareholders' equity	Non-controlling interests Hybrid bonds	Non-controlling interests Other interest	Total equity
	(12,153)	(2,643)	–	(183)	(73)	(256)	34,732	67,553	13,390	2,047	82,990
	–	–	–	–	–	–	15,239	15,239	586	55	15,880
	–	728	–	–	–	–	–	728	–	26	754
	–	–	–	488	(110)	378	–	378	–	–	378
	–	–	–	–	–	–	(192)	(192)	–	–	(192)
	–	–	–	–	–	–	(1,504)	(1,504)	–	–	(1,504)
	–	–	38	–	–	38	–	38	–	–	38
	–	–	–	15	–	15	–	15	–	–	15
	–	728	38	503	(110)	431	13,543	14,702	586	81	15,369
	–	–	–	–	–	–	(4,831)	(4,831)	–	(403)	(5,234)
	–	–	–	(1)	–	(1)	–	(1)	–	–	(1)
	–	–	–	–	–	–	(8,167)	(8,167)	–	–	(8,167)
	830	–	–	–	–	–	(301)	669	–	–	669
	–	–	–	–	–	–	1	1	–	–	1
	–	–	–	–	–	–	(1)	(1)	176	–	175
	–	(5)	–	–	–	–	–	(5)	(586)	–	(591)
	–	–	–	–	–	–	363	363	–	(81)	282
	(11,323)	(1,920)	38	319	(183)	174	35,339	70,283	13,566	1,644	85,493
	(12,624)	(9,572)	–	(851)	(176)	(1,027)	51,815	75,463	13,041	1,935	90,439
	–	–	–	–	–	–	(2,487)	(2,487)	519	611	(1,357)
	–	6,914	–	–	–	–	–	6,914	–	(61)	6,853
	–	–	–	671	103	774	–	774	–	–	774
	–	–	–	–	–	–	402	402	–	–	402
	–	–	–	–	–	–	(225)	(225)	–	–	(225)
	–	–	–	–	–	–	408	408	–	–	408
	–	–	–	(4)	–	(4)	–	(4)	–	–	(4)
	–	6,914	–	667	103	770	(1,902)	5,782	519	550	6,851
	–	–	–	–	–	–	(4,365)	(4,365)	–	(294)	(4,659)
	–	–	–	1	–	1	–	1	–	–	1
	–	–	–	–	–	–	–	820	–	–	820
	–	–	–	–	–	–	(10,493)	(10,493)	–	–	(10,493)
	471	–	–	–	–	–	194	847	–	–	847
	–	–	–	–	–	–	(4)	(4)	374	–	370
	–	15	–	–	–	–	–	15	(544)	–	(529)
	–	–	–	–	–	–	(513)	(513)	–	(144)	(657)
	(12,153)	(2,643)	–	(183)	(73)	(256)	34,732	67,553	13,390	2,047	82,990

32. Capital and reserves – continued

	Share capital	Share premium account	Capital redemption reserve	Merger reserve	Total share capital and capital reserves
At 1 January 2021	5,383	12,584	1,528	27,206	46,701
Profit (loss) for the year	–	–	–	–	–
Items that may be reclassified subsequently to profit or loss					
Currency translation differences (including reclassifications)	–	–	–	–	–
Cash flow hedges and costs of hedging (including reclassifications)	–	–	–	–	–
Share of items relating to equity-accounted entities, net of tax	–	–	–	–	–
Other	–	–	–	–	–
Items that will not be reclassified to profit or loss					
Remeasurements of the net pension and other post-retirement benefit liability or asset	–	–	–	–	–
Cash flow hedges that will subsequently be transferred to the balance sheet	–	–	–	–	–
Total comprehensive income	–	–	–	–	–
Dividends	–	–	–	–	–
Cash flow hedges transferred to the balance sheet, net of tax	–	–	–	–	–
Repurchases of ordinary share capital	(177)	–	177	–	–
Share-based payments, net of tax[a]	9	161	–	–	170
Share of equity-accounted entities' changes in equity, net of tax	–	–	–	–	–
Issue of perpetual hybrid bonds	–	–	–	–	–
Payments on perpetual hybrid bonds	–	–	–	–	–
Transactions involving non-controlling interests, net of tax[b]	–	–	–	–	–
At 31 December 2021	5,215	12,745	1,705	27,206	46,871

[a] Movements in treasury shares relate to employee share-based payment plans.
[b] Principally relates to the sale of 49% interest in a controlled affiliate holding certain refined product and crude logistics assets onshore US and the buy-out of the non-controlling interest in the Thorntons fuels and convenience retail business.

32. Capital and reserves – continued

$ million

Treasury shares	Foreign currency translation reserve	Cash flow hedges	Costs of hedging	Total fair value reserves	Profit and loss account	bp shareholders' equity	Non-controlling interests		Total equity
							Hybrid bonds	Other interest	
(13,224)	(8,719)	(708)	(100)	(808)	47,300	71,250	12,076	2,242	85,568
–	–	–	–	–	7,565	7,565	507	415	8,487
–	(846)	–	–	–	–	(846)	–	(24)	(870)
–	–	(134)	(76)	(210)	–	(210)	–	–	(210)
–	–	–	–	–	44	44	–	–	44
–	–	–	–	–	1	1	–	–	1
–	–	–	–	–	3,099	3,099	–	–	3,099
–	–	1	–	1	–	1	–	–	1
–	(846)	(133)	(76)	(209)	10,709	9,654	507	391	10,552
–	–	–	–	–	(4,316)	(4,316)	–	(311)	(4,627)
–	–	(10)	–	(10)	–	(10)	–	–	(10)
–	–	–	–	–	(3,151)	(3,151)	–	–	(3,151)
600	–	–	–	–	(138)	632	–	–	632
–	–	–	–	–	556	556	–	–	556
–	–	–	–	–	(26)	(26)	950	–	924
–	(7)	–	–	–	–	(7)	(492)	–	(499)
–	–	–	–	–	881	881	–	(387)	494
(12,624)	(9,572)	(851)	(176)	(1,027)	51,815	75,463	13,041	1,935	90,439

32. Capital and reserves – continued

Share capital

The balance on the share capital account represents the aggregate nominal value of all ordinary and preference shares in issue, including treasury shares.

Share premium account

The balance on the share premium account represents the amounts received in excess of the nominal value of the ordinary and preference shares.

Capital redemption reserve

The balance on the capital redemption reserve represents the aggregate nominal value of all the ordinary shares repurchased and cancelled.

Merger reserve

The balance on the merger reserve represents the fair value of the consideration given in excess of the nominal value of the ordinary shares issued in an acquisition made by the issue of shares.

Treasury shares

Treasury shares represent bp shares repurchased and available for specific and limited purposes. For accounting purposes shares held in Employee Share Ownership Plans (ESOPs) and bp's US share plan administrator to meet the future requirements of the employee share-based payment plans are treated in the same manner as treasury shares and are, therefore, included in the financial statements as treasury shares. The ESOPs are funded by the group and have waived their rights to dividends in respect of such shares held for future awards. Until such time as the shares held by the ESOPs vest unconditionally to employees, the amount paid for those shares is shown as a reduction in shareholders' equity. Assets and liabilities of the ESOPs are recognized as assets and liabilities of the group.

Investments in equity instruments

This reserve records the change in fair value of investments in equity instruments for which the group has elected to recognize fair value gains and losses in other comprehensive income.

Foreign currency translation reserve

The foreign currency translation reserve records exchange differences arising from the translation of the financial statements of foreign operations. Upon disposal of foreign operations, the related accumulated exchange differences are reclassified to the income statement.

Cash flow hedges

This reserve records the portion of the gain or loss on a hedging instrument in a cash flow hedge that is determined to be an effective hedge. For further information on the accounting for cash flow hedges see Note 1 - Derivative financial instruments and hedging activities.

Costs of hedging

This reserve records the change in fair value of the foreign currency basis spread of financial instruments to which cost of hedge accounting has been applied. The accumulated amount relates to time-period related hedged items and is amortized to profit or loss over the term of the hedging relationship. For further information on the accounting for costs of hedging see Note 1 - Derivative financial instruments and hedging activities.

Profit and loss account

The balance held on this reserve is the accumulated retained profits of the group.

Non-controlling interests

Non-controlling interests represent the equity in subsidiaries that is not attributable, directly or indirectly, to bp shareholders. Included within non-controlling interests are perpetual subordinated hybrid bonds issued by BP Capital Markets p.l.c., a group subsidiary, on 17 June 2020 in euro, sterling and US dollars for a US dollar equivalent amount of $11.9 billion. The hybrid bonds include redemption options exercisable at the group's discretion from June 2025 to March 2030 (the first 'call date'), on specified dates thereafter, or in the event of specific circumstances (such as a change in IFRS or tax regime) as set out in the individual terms of each issue. Coupons are fixed for an initial period up to dates from September 2025 to June 2030 at rates of 3.25% to 4.875% and reset to rates determined by the contractual terms of each instrument on certain dates thereafter. The contractual terms of the hybrid bonds allow the group to defer coupon payments and the repayment of principal indefinitely, however their terms and conditions stipulate that any deferred payments must be made in the event of an announcement of an ordinary share or parity equity dividend distribution or certain share repurchases or redemptions. Payments made to and profit attributed to these hybrid bond holders in the year totalled $477 million (2022 $468 million and 2021 $499 million) and $473 million (2022 $468 million and 2021 $497 million) respectively. The accumulated non-controlling interest at the end of the year was $12,066 million (2022 $12,066 million). On 26 February BP Capital Markets p.l.c. issued a further $1.3 billion of US dollar perpetual subordinated hybrid bonds with a coupon fixed for an initial period up to 2034 of 6.45%. On 26 February BP Capital Markets p.l.c. announced its intent to voluntarily buy back up to $1.3 billion of the non-call 2025 4.375% US dollar hybrid bonds issued in 2020. Taken together these transactions are not expected to have a significant impact on net debt or gearing.

Non-controlling interests also includes perpetual subordinated hybrid securities issued during 2023, 2022 and 2021 by a group subsidiary. The proceeds from these issuances were specifically earmarked to fund the forward purchase and leaseback of an under-construction floating, production, storage, and offloading vessel (FPSO) to be used on one of the group's major projects. The contractual terms of these instruments allow the group to defer interest payments and repayment of principal indefinitely however their terms and conditions stipulate that the group must purchase them on the occurrence of certain events, all within the group's control, including the declaration or payment of a BP p.l.c. distribution after mid-May 2026. Payments made to and profit attributed to these hybrid security holders in the year totalled $114 million (2022 $61 million) and $113 million (2022 $51 million) respectively. The accumulated non-controlling interest at the end of the year was $1,500 million (2022 $1,324 million).

As the group has the unconditional right to avoid transferring cash or another financial asset in relation to these hybrid bonds and securities, they are classified as equity instruments and reported within non-controlling interests in the consolidated financial statements.

32. Capital and reserves – continued

The pre-tax amounts of each component of other comprehensive income, and the related amounts of tax, are shown in the table below.

			$ million
			2023
	Pre-tax	Tax	Net of tax
Items that may be reclassified subsequently to profit or loss			
Currency translation differences (including reclassifications)	**583**	**171**	**754**
Cash flow hedges (including reclassifications)	**637**	**(149)**	**488**
Costs of hedging (including reclassifications)	**(78)**	**(32)**	**(110)**
Share of items relating to equity-accounted entities, net of tax	**(192)**	**—**	**(192)**
Items that will not be reclassified to profit or loss			
Remeasurements of the net pension and other post-retirement benefit liability or asset	**(2,262)**	**758**	**(1,504)**
Remeasurements of equity investments	**51**	**(13)**	**38**
Cash flow hedges that will subsequently be transferred to the balance sheet	**15**	**—**	**15**
Other comprehensive income	**(1,246)**	**735**	**(511)**

			$ million
			2022
	Pre-tax	Tax	Net of tax
Items that may be reclassified subsequently to profit or loss			
Currency translation differences (including reclassifications)	6,973	(120)	6,853
Cash flow hedges (including reclassifications)	677	(6)	671
Costs of hedging (including reclassifications)	86	17	103
Share of items relating to equity-accounted entities, net of tax	402	—	402
Other	—	(225)	(225)
Items that will not be reclassified to profit or loss			
Remeasurements of the net pension and other post-retirement benefit liability or asset	340	68	408
Cash flow hedges that will subsequently be transferred to the balance sheet	(4)	—	(4)
Other comprehensive income	8,474	(266)	8,208

			$ million
			2021
	Pre-tax	Tax	Net of tax
Items that may be reclassified subsequently to profit or loss			
Currency translation differences (including reclassifications)	(885)	15	(870)
Cash flow hedges (including reclassifications)	(175)	41	(134)
Costs of hedging (including reclassifications)	(84)	8	(76)
Share of items relating to equity-accounted entities, net of tax	44	—	44
Other	—	1	1
Items that will not be reclassified to profit or loss			
Remeasurements of the net pension and other post-retirement benefit liability or asset	4,416	(1,317)	3,099
Cash flow hedges that will subsequently be transferred to the balance sheet	1	—	1
Other comprehensive income	3,317	(1,252)	2,065

33. Contingent liabilities and legal proceedings

Contingent liabilities

There were contingent liabilities at 31 December 2023 in respect of guarantees and indemnities entered into as part of the ordinary course of the group's business. No material losses are likely to arise from such contingent liabilities. Further information on financial guarantees is included in Note 29.

In the normal course of the group's business, bp group entities are subject to legal and regulatory proceedings arising out of current and past operations, including matters related to commercial disputes, product liability, antitrust, commodities trading, premises-liability claims, consumer protection, general health, safety, climate change and environmental claims and allegations of exposures of third parties to toxic substances, such as lead pigment in paint, asbestos and other chemicals. The amounts claimed could be significant and could be material to the group's results of operations, financial position or liquidity. While it is difficult to predict the ultimate outcome in some cases, bp expects that the impact of current legal and regulatory proceedings on the group's results of operations, liquidity or financial position will not be material.

The group files tax returns in many jurisdictions across the world. Various tax authorities are currently examining these returns, which contain matters that could be subject to differing interpretations of applicable tax laws and regulations. The resolution of tax positions through negotiations with relevant tax authorities, or through litigation, can take several years to complete and the amounts could be significant and could, in aggregate, be material to the group's results of operations, financial position or liquidity. While it is difficult to predict the ultimate outcome in some cases, bp does not expect there to be any material impact upon the group's results of operations, financial position or liquidity.

33. Contingent liabilities and legal proceedings – continued

The group is subject to numerous national and local health, safety and environmental laws and regulations concerning its products, operations and other activities. These laws and regulations may require the group to take future action to remediate the effects on the environment of prior disposal or release of chemicals or petroleum substances by the group or other parties. Such contingencies may exist for various sites including refineries, chemical plants, oil fields, commodities extraction sites, service stations, terminals and waste disposal sites. In addition, the group may have obligations relating to prior asset sales or closed facilities. The ultimate requirement for remediation and its costs are inherently difficult to estimate. However, the estimated cost of environmental obligations has been provided in these accounts in accordance with the group's accounting policies. While the amounts of future possible costs that are not provided for could be significant and material to the group's results of operations in the period in which they are recognized, it is not possible to estimate the amounts involved. bp does not expect these costs to have a material impact on the group's results of operations, financial position or liquidity.

If production and manufacturing facilities and pipelines are sold to third parties and the subsequent owner is unable to meet their decommissioning obligations it is possible that, in certain circumstances, bp could be partially or wholly responsible for decommissioning. The group estimates that for production facilities, approximately $16 billion (2022 $16 billion) of associated decommissioning obligations were previously transferred to third parties. While the amounts associated with decommissioning provisions reverting to the group could be material, bp is not currently aware of any such material cases that have a greater than remote chance of reverting to the group. Furthermore, as described in Provisions and contingencies within Note 1, decommissioning provisions associated with customers & products facilities are not generally recognized as the potential obligations cannot be measured given their indeterminate settlement dates.

By their nature, it is not practicable to estimate the potential financial impact or possible timing of the above contingencies as there are significant uncertainties that are dependent on various factors that are not within the group's control.

Contingent liabilities related to the Gulf of Mexico oil spill

For information on legal proceedings relating to the Deepwater Horizon oil spill, see Legal proceedings below. Any outstanding Deepwater Horizon related claims are not expected to have a material impact on the group's financial performance.

Legal proceedings

Proceedings relating to the Deepwater Horizon oil spill

Introduction

BP Exploration & Production Inc. (BPXP) was lease operator of Mississippi Canyon, Block 252 in the Gulf of Mexico, where the semi-submersible rig Deepwater Horizon was deployed at the time of the 20 April 2010 explosion and fire and resulting oil spill (the Incident). Lawsuits and claims arising from the Incident were brought principally in US federal and state courts. The remaining proceedings arising from the Incident are discussed below.

Medical Benefits Class Action Settlement

In 2012 the Medical Benefits Class Action Settlement (Medical Settlement) was entered into with the plaintiffs steering committee. It includes an exclusive remedy provision regarding class members pursuing exposure-based personal injury claims for later-manifested physical conditions (LMPCs). As of 31 December 2023, there were 60 pending lawsuits brought by class members claiming LMPCs.

Other civil complaints – personal injury

The vast majority of post-explosion clean-up, medical monitoring and personal injury claims from individuals that either opted out of the Medical Settlement and/or were excluded from that settlement have been dismissed (including more than 600 cases in which the courts granted BPXP's motions for summary judgment). As of 31 December 2023, 88 cases remained pending in the district courts and around 100 appeals filed to the Fifth Circuit in cases where the district courts have granted summary judgment in favour of bp also remain pending.

Non-US government lawsuits

Two class actions are pending in Mexican Federal District Courts against various bp group entities including BPXP and BP America Production Company by separate plaintiff classes. Although the two actions are separate, both broadly seek penalties, damages and compensation for alleged environmental, health and economic harm in Mexico as a result of the Incident. One of the actions also seeks an order requiring the bp defendants to repair alleged damage to the Gulf of Mexico.

bp has answered the complaints in both actions by seeking dismissal on various grounds including that no oil reached Mexican waters or land and there was no economic or environmental harm in Mexico.

These legal actions remain at a relatively early stage and while it is not possible to predict the outcome, bp believes that it has valid defences, and it intends to defend such actions vigorously.

33. Contingent liabilities and legal proceedings – continued

Other legal proceedings

FERC and CFTC matters

Following an investigation by the US Federal Energy Regulatory Commission (FERC) and the US Commodity Futures Trading Commission (CFTC) of several bp entities, the Administrative Law Judge of the FERC ruled on 13 August 2015 that bp manipulated the market by selling next-day, fixed price natural gas at Houston Ship Channel in 2008 in order to suppress the Gas Daily index and benefit its financial position. In 2016, the FERC issued an Order affirming that decision and directing bp to pay a civil penalty of $20.16 million and to disgorge $207,169 in unjust profits. Following an appeal by bp to the US Court of Appeals, the Fifth Circuit issued an opinion upholding the FERC's manipulation finding on a few trades. The Fifth Circuit also found that the FERC did not have jurisdiction over most of the transactions identified as being violations. In July 2023, bp and FERC reached a settlement agreement that reduced the civil penalty to $10.75 million and fully resolved all claims by the FERC related to the matter.

Climate change

BP p.l.c., BP America Inc. and BP Products North America Inc. are co-defendants with other oil and gas companies in over 20 lawsuits brought in various state and federal courts on behalf of various governmental and private parties. The lawsuits generally assert claims under a variety of legal theories seeking to hold the defendant companies responsible for impacts allegedly caused by and/or relating to climate change. Underlying many of the legal theories are allegations regarding deceptive communication and disinformation to the public. The lawsuits seek remedies including payment of money and other forms of equitable relief. If such suits were successful, the cost of the remedies sought in the various cases could be substantial. Over the last several years, defendants removed each lawsuit to federal court and the removals were contested by plaintiffs, eventually resulting in multiple decisions by several Circuit Court of Appeals rejecting defendants' attempts to have the cases moved to federal court. In 2023, the US Supreme Court declined to review the various Circuit Court of Appeals decisions. Accordingly, the cases will proceed in the various state courts. Due to these jurisdictional challenges, the lawsuits all remain at relatively early stages. While it is not possible to predict the outcome of these legal actions, bp believes that it has valid defences, and it intends to defend such actions vigorously.

Louisiana Coastal restoration

Six coastal parishes and the State of Louisiana have filed over 40 separate lawsuits in state courts in Louisiana against various oil and gas companies seeking damages for coastal erosion. bp entities were named defendants in 17 of these cases. The lawsuits allege that the defendants' historical operations in oil and gas fields within the Louisiana onshore coastal zone failed to comply with state permits and/or were conducted without the required coastal use permits. The scope and scale of plaintiffs' damages demands are significant and unprecedented, including substantial remediation costs and the claimed costs for restoring coastal wetlands allegedly impacted by oil and gas field operations.

Defendants removed all of these lawsuits to federal court and the removals were contested by plaintiffs, eventually resulting in a decision from the US Fifth Circuit Court of Appeals rejecting defendants' "federal officer" jurisdiction removal grounds in one of two lead cases – Plaquemines Parish v. Riverwood, et al. Defendants' petition for writ of certiorari to the US Supreme Court seeking review of the US Fifth Circuit's Riverwood decision was denied in early 2023. There is a small subset of the removed cases in which the defendants continue to contest jurisdiction and await a final ruling from the Fifth Circuit on a related "federal officer" removal jurisdiction theory.

Following remand, the state court in the other lead case of Cameron Parish v. Auster et al., in which bp was the principal defendant, had established a November 2023 trial date. Before trial commenced during the fourth quarter 2023, bp entered into a settlement agreement and release with the plaintiffs in respect of all claims arising within Cameron Parish. The terms of the settlement agreement and release are confidential and bp does not expect those terms to have a significant effect on the company's financial position or profitability.

In addition, four private landowners have filed separate claims in the state courts in Jefferson and Plaquemines Parishes of Louisiana for restoration damages related to alleged impacts to their marshlands associated with historic oil field operations. bp entities are defendants in two of these private landowner cases.

All of the other remanded cases remain at early stages in the litigation. While it is not possible to predict the outcomes of these novel legal actions, bp believes that it has valid defences, and it intends to defend such actions vigorously.

34. Remuneration of senior management and non-executive directors

Remuneration of directors

			$ million
	2023	2022	2021
Total for all directors			
Emoluments	8	8	9
Amounts received under incentive schemes[a]	6	13	4
Total	**14**	21	13

[a] Excludes amounts relating to past directors.

Emoluments

These amounts comprise fees paid to the non-executive chair and the non-executive directors and, for executive directors, salary and benefits earned during the relevant financial year, plus cash bonuses awarded for the year.

Further information

Full details of individual directors' remuneration are given in the Directors' remuneration report on page 105.

Remuneration of directors and senior management

			$ million
	2023	2022	2021
Total for all senior management and non-executive directors			
Short-term employee benefits	31	31	30
Pensions and other post-retirement benefits	—	—	1
Share-based payments[a]	12	31	32
Termination benefits	—	—	—
Total	**43**	62	63

[a] Includes a reversal of $14 million relating to the lapse of Bernard Looney's outstanding share awards in prior years.

Senior management comprises members of the leadership team, see pages 86-87 for further information.

Short-term employee benefits

These amounts comprise fees and benefits paid to the non-executive chair and non-executive directors, as well as salary, benefits and cash bonuses for senior management. Deferred annual bonus awards, to be settled in shares, are included in share-based payments.

Pensions and other post-retirement benefits

The amounts represent the estimated cost to the group of providing pensions and other post-retirement benefits to senior management in respect of the current year of service measured in accordance with IAS 19 'Employee Benefits'.

Share-based payments

This is the cost to the group of senior management's participation in share-based payment plans, as measured by the fair value of options and shares granted, accounted for in accordance with IFRS 2 'Share-based Payments'.

Termination benefits

Termination benefits include compensation to senior management for loss of office.

Related party transactions

Transactions between the group and its significant joint ventures and associates are summarized in Financial statements – Note 16 and Note 17. In the ordinary course of its business, the group enters into transactions with various organizations with which some of its directors or executive officers are associated. Except as described in this report, the group did not have any material transactions or transactions of an unusual nature with, and did not make loans to, related parties in the period commencing 1 January 2023 to 16 February 2024.

35. Employee costs and numbers

Employee costs	2023	2022	2021
			$ million
Wages and salaries[a]	**7,835**	7,486	6,934
Social security costs	**943**	720	733
Share-based payments[b]	**1,131**	1,034	733
Pension and other post-retirement benefit costs	**370**	576	457
	10,279	9,816	8,857

	2023			2022			2021		
Average number of employees[c]	US	Non-US	Total	US	Non-US	Total	US	Non-US	Total
gas & low carbon energy	**900**	**3,700**	**4,600**	700	3,400	4,100	400	3,400	3,800
oil production & operations	**3,100**	**5,500**	**8,600**	3,000	5,700	8,700	3,100	6,000	9,100
customers & products[d]	**19,500**	**36,300**	**55,800**	8,000	35,700	43,700	6,200	35,800	42,000
other businesses and corporate	**1,400**	**9,000**	**10,400**	1,300	8,500	9,800	1,400	7,700	9,100
	24,900	**54,500**	**79,400**	13,000	53,300	66,300	11,100	52,900	64,000

[a] Includes termination costs of $96 million (2022 $27 million and 2021 $74 million).
[b] The group provides certain employees with shares and share options as part of their remuneration packages. The majority of these share-based payment arrangements are equity-settled.
[c] Reported to the nearest 100.
[d] Includes 33,800 (2022 23,300 and 2021 21,300) service station staff.

36. Auditor's remuneration

Fees	2023	2022	2021
			$ million
The audit of the company annual accounts[a]	**38**	36	37
The audit of accounts of subsidiaries of the company	**15**	15	15
Total audit	**53**	51	52
Audit-related assurance services[b]	**4**	4	5
Total audit and audit-related assurance services	**57**	55	57
Non-audit and other assurance services	**3**	—	—
Services relating to bp pension plans	**1**	1	1
	61	56	58

[a] Fees in respect of the audit of the accounts of BP p.l.c. including the group's consolidated financial statements.
[b] Includes interim reviews and audit of internal control over financial reporting and non-statutory audit services.

2023 includes $0.2 million of additional fees for 2022. 2022 includes $0.3 million of additional fees for 2021. 2021 includes $1.0 million of additional fees for 2020. Auditor's remuneration is included in the income statement within distribution and administration expenses.

Tax services (in relation to income tax, indirect tax compliance, employee tax services and tax advisory services) were $nil in all periods presented.

The audit committee has established pre-approval policies and procedures for the engagement of Deloitte to render audit and certain assurance and other services. The audit fees payable to Deloitte were considered as part of the audit tender process in 2016 and challenged by the audit committee through comparison with the audit pricing proposals of the other bidding firms. Changes in audit fees subsequent to the audit tender, including matters relevant to the 2023 audit, have been reviewed and challenged by the Audit Committee, before being approved. Deloitte performed further assurance services that were not prohibited by regulatory or other professional requirements and were pre-approved by the Committee. Deloitte is engaged for these services when its expertise and experience of bp are important. Most of this work is of an audit-related or assurance nature.

Under SEC regulations, the remuneration of the auditor of $61 million (2022 $56 million and 2021 $58 million) is required to be presented as follows: audit $53 million (2022 $51 million and 2021 $52 million); other audit-related $4 million (2022 $4 million and 2021 $5 million); tax $nil (2022 $nil and 2021 $nil); and all other fees $4 million (2022 $1 million and 2021 $1 million).

37. Subsidiaries, joint arrangements and associates[a]

The more important subsidiaries, joint arrangements and associates of the group at 31 December 2023 and the group percentage of ordinary share capital (to nearest whole number) are set out below. The group's share of the assets and liabilities of the more important unincorporated joint arrangements are held by subsidiaries listed in the table below. Those subsidiaries held directly by the parent company are marked with an asterisk (*), the percentage owned being that of the group unless otherwise indicated. A complete list of undertakings of the group is included in Note 14 in the parent company financial statements of BP p.l.c. which are filed with the Registrar of Companies in the UK, along with the group's annual report.

Subsidiaries	%	Country of incorporation	Principal activities
International			
BP Corporate Holdings Limited	100	England & Wales	Investment holding
BP Exploration Operating Company Limited	100	England & Wales	Exploration and production
*BP Gamma Holdings Limited	100	England & Wales	Investment holding
*BP Global Investments Limited	100	England & Wales	Investment holding
*BP International Limited	100	England & Wales	Integrated oil operations
BP Oil International Limited	100	England & Wales	Integrated oil operations
*Burmah Castrol PLC	100	Scotland	Investment holding
Azerbaijan			
BP Exploration (Caspian Sea) Limited	100	England & Wales	Exploration and production
BP Exploration (Azerbaijan) Limited	100	England & Wales	Exploration and production
Egypt			
BP Exploration (Delta) Limited	100	England & Wales	Exploration and production
Germany			
BP Europa SE	100	Germany	Refining and marketing
Trinidad and Tobago			
BP Trinidad and Tobago LLC	70	US	Exploration and production
UK			
BP Capital Markets p.l.c.	100	England & Wales	Finance
US			
*BP Holdings North America Limited	100	England & Wales	Investment holding
Atlantic Richfield Company	100	US	Exploration and production, refining and marketing
BP America Inc.	100	US	Exploration and production, refining and marketing
BP America Production Company	100	US	Exploration and production, refining and marketing
BP Company North America Inc.	100	US	Exploration and production, refining and marketing
BP Corporation North America Inc.	100	US	Exploration and production, refining and marketing
BP Products North America Inc.	100	US	Exploration and production, refining and marketing
The Standard Oil Company	100	US	Exploration and production, refining and marketing
Archaea Energy Inc.	100	US	Bioenergy
BP Capital Markets America Inc.	100	US	Finance

Joint arrangements	%	Country of incorporation	Principal activities
Angola			
Azule Energy Holdings Limited	50	England & Wales	Exploration and production

[a] There were no important associates in the group at 31 December 2023.

38. Events after the reporting period

On 14 February 2024 bp announced that it had agreed to form a new joint venture in Egypt with ADNOC (bp 51%, ADNOC 49%). As part of the agreement bp will contribute its interests in three non-operated development concessions as well as exploration agreements in Egypt, and ADNOC will make a proportionate cash contribution. Formation of the joint venture and completion of these transactions is subject to regulatory approval. From 14 February 2024 the associated carrying values of these interests have been determined to meet the criteria to be classified as assets held for sale under IFRS 5 Non-current Assets Held for Sale and Discontinued Operations. The carrying value of fixed assets associated with these interests at 31 December 2023 was $1.4 billion. The impacts are expected to be reflected in the group's first quarter 2024 interim financial statements.

Supplementary information on oil and natural gas (unaudited)

The regional analysis presented below is on a continent basis, with separate disclosure for countries that contain 15% or more of the total proved reserves (for subsidiaries plus equity-accounted entities[a]), in accordance with SEC and FASB requirements.

Oil and gas reserves – certain definitions

Unless the context indicates otherwise, the following terms have the meanings shown below:

Proved oil and gas reserves

Proved oil and gas reserves are those quantities of oil and gas, which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be economically producible – from a given date forward, from known reservoirs, and under existing economic conditions, operating methods, and government regulations – prior to the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence the project within a reasonable time.

(i) The area of the reservoir considered as proved includes:

(A) The area identified by drilling and limited by fluid contacts, if any; and

(B) Adjacent undrilled portions of the reservoir that can, with reasonable certainty, be judged to be continuous with it and to contain economically producible oil or gas on the basis of available geoscience and engineering data.

(ii) In the absence of data on fluid contacts, proved quantities in a reservoir are limited by the lowest known hydrocarbons as seen in a well penetration unless geoscience, engineering, or performance data and reliable technology establishes a lower contact with reasonable certainty.

(iii) Where direct observation from well penetrations has defined a highest known oil elevation and the potential exists for an associated gas cap, proved oil reserves may be assigned in the structurally higher portions of the reservoir only if geoscience, engineering, or performance data and reliable technology establish the higher contact with reasonable certainty.

(iv) Reserves which can be produced economically through application of improved recovery techniques (including, but not limited to, fluid injection) are included in the proved classification when:

(A) Successful testing by a pilot project in an area of the reservoir with properties no more favourable than in the reservoir as a whole, the operation of an installed programme in the reservoir or an analogous reservoir, or other evidence using reliable technology establishes the reasonable certainty of the engineering analysis on which the project or programme was based; and

(B) The project has been approved for development by all necessary parties and entities, including governmental entities.

(v) Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be the average price during the 12-month period prior to the ending date of the period covered by the report, determined as an unweighted arithmetic average of the first-day-of-the-month price for each month within such period, unless prices are defined by contractual arrangements, excluding escalations based upon future conditions.

Undeveloped oil and gas reserves

Undeveloped oil and gas reserves are reserves of any category that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion.

(i) Reserves on undrilled acreage shall be limited to those directly offsetting development spacing areas that are reasonably certain of production when drilled, unless evidence using reliable technology exists that establishes reasonable certainty of economic producibility at greater distances.

(ii) Undrilled locations can be classified as having undeveloped reserves only if a development plan has been adopted indicating that they are scheduled to be drilled within five years, unless the specific circumstances, justify a longer time.

(iii) Under no circumstances shall estimates for undeveloped reserves be attributable to any acreage for which an application of fluid injection or other improved recovery technique is contemplated, unless such techniques have been proved effective by actual projects in the same reservoir or an analogous reservoir, or by other evidence using reliable technology establishing reasonable certainty.

Developed oil and gas reserves

Developed oil and gas reserves are reserves of any category that can be expected to be recovered:

(i) Through existing wells with existing equipment and operating methods or in which the cost of the required equipment is relatively minor compared to the cost of a new well; and

(ii) Through installed extraction equipment and infrastructure operational at the time of the reserves estimate if the extraction is by means not involving a well.

For details on bp's proved reserves and production compliance and governance processes, see pages 342-350.

a See Note 1 - Investment in Rosneft.

Oil and natural gas exploration and production activities

									$ million
									2023
	Europe		North America		South America	Africa	Asia	Australasia	Total
	UK	Rest of Europe	US	Rest of North America					
Subsidiaries									
Capitalized costs at 31 December[a b]									
Gross capitalized costs									
Proved properties	29,127	–	70,404	6	17,475	20,763	41,351	6,331	185,457
Unproved properties	369	–	3,057	1,917	2,565	2,739	1,691	737	13,075
	29,496	–	73,461	1,923	20,040	23,502	43,042	7,068	198,532
Accumulated depreciation	22,018	–	42,364	1,592	15,712	21,132	24,431	4,998	132,247
Net capitalized costs	7,478	–	31,097	331	4,328	2,370	18,611	2,070	66,285
Costs incurred for the year ended 31 December[a b]									
Acquisition of properties									
Proved	–	–	13	–	–	–	–	–	13
Unproved	–	–	51	–	2	6	–	–	59
	–	–	64	–	2	6	–	–	72
Exploration and appraisal costs[c]	123	–	356	123	114	270	145	100	1,231
Development	484	–	4,690	–	713	863	1,424	32	8,206
Total costs	607	–	5,110	123	829	1,139	1,569	132	9,509
Results of operations for the year ended 31 December[a]									
Sales and other operating revenues[d]									
Third parties	206	–	665	–	1,348	3,227	4,801	1,765	12,012
Sales between businesses	3,483	–	12,705	–	20	22	7,731	412	24,373
	3,689	–	13,370	–	1,368	3,249	12,532	2,177	36,385
Exploration expenditure	46	–	348	93	54	413	25	18	997
Production costs	477	–	2,382	2	360	232	588	111	4,152
Production taxes	13	–	136	–	229	–	1,357	44	1,779
Other costs (income)[e]	(171)	–	2,144	13	115	304	(35)	145	2,515
Depreciation, depletion and amortization	1,063	–	3,532	–	1,351	1,546	2,844	412	10,748
Net impairments and (gains) losses on sale of businesses and fixed assets	819	(18)	701	(100)	671	1,430	(1)	(4)	3,498
	2,247	(18)	9,243	8	2,780	3,925	4,778	726	23,689
Profit (loss) before taxation[f]	1,442	18	4,127	(8)	(1,412)	(676)	7,754	1,451	12,696
Allocable taxes	365	19	889	(3)	(565)	439	5,317	451	6,912
Results of operations	1,077	(1)	3,238	(5)	(847)	(1,115)	2,437	1,000	5,784

[a] These tables contain information relating to oil and natural gas exploration and production activities of subsidiaries, which includes bp's share of oil and natural gas exploration and production activities of joint operations. They do not include any costs relating to the Gulf of Mexico oil spill. Amounts relating to the management and ownership of crude oil and natural gas pipelines, LNG liquefaction and transportation operations are excluded. In addition, bp's midstream activities of marketing and trading of natural gas, power and NGLs in the US, Canada, UK, Asia and Europe are excluded. The most significant midstream pipeline interests include the South Caucasus Pipeline, the Baku-Tbilisi-Ceyhan pipeline, the Trans Adriatic Pipeline and the Trans Anatolian Pipeline. Major LNG activities are located in Trinidad, Indonesia and Australia.

[b] Costs of decommissioning are included in capitalized costs at 31 December but are excluded from costs incurred for the year.

[c] Includes exploration and appraisal drilling expenditures, which are capitalized within intangible assets, and geological and geophysical exploration costs, which are charged to income as incurred.

[d] Presented net of transportation costs, purchases and sales taxes.

[e] Includes property taxes and other government take. The UK region includes a $287-million gain which is offset by corresponding charges primarily in the US region, relating to the group self-insurance programme.

[f] Excludes the unwinding of the discount on provisions and payables amounting to $390 million which is included in finance costs in the group income statement.

Oil and natural gas exploration and production activities – continued

$ million

2023

	Europe		North America		South America	Africa	Asia	Australasia	Total
	UK	Rest of Europe	US	Rest of North America					
Equity-accounted entities (bp share)									
Capitalized costs at 31 December[a b]									
Gross capitalized costs									
Proved properties	–	4,432	–	–	12,530	8,590	9,947	–	35,499
Unproved properties	–	652	–	–	125	372	–	–	1,149
	–	5,084	–	–	12,655	8,962	9,947	–	36,648
Accumulated depreciation	–	2,420	–	–	6,807	1,812	1,696	–	12,735
Net capitalized costs	–	2,664	–	–	5,848	7,150	8,251	–	23,913
Costs incurred for the year ended 31 December[a c d]									
Acquisition of properties[b]									
Proved	–	–	–	–	–	–	–	–	–
Unproved	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–
Exploration and appraisal costs[c]	–	42	–	–	7	44	–	–	93
Development	–	584	–	–	687	844	942	–	3,057
Total costs	–	626	–	–	694	888	942	–	3,150
Results of operations for the year ended 31 December[a]									
Sales and other operating revenues[e]									
Third parties	–	2,159	–	–	2,070	2,550	1,716	–	8,495
Sales between businesses	–	–	–	–	–	–	–	–	–
	–	2,159	–	–	2,070	2,550	1,716	–	8,495
Exploration expenditure	–	41	–	–	–	44	–	–	85
Production costs	–	169	–	–	715	427	374	–	1,685
Production taxes	–	–	–	–	332	52	–	–	384
Other costs (income)	–	21	–	–	257	239	8	–	525
Depreciation, depletion and amortization	–	455	–	–	451	1,344	1,144	–	3,394
Net impairments and losses on sale of businesses and fixed assets	–	141	–	–	–	15	–	–	156
	–	827	–	–	1,755	2,121	1,526	–	6,229
Profit (loss) before taxation	–	1,332	–	–	315	429	190	–	2,266
Allocable taxes	–	1,124	–	–	127	173	117	–	1,541
Results of operations	–	208	–	–	188	256	73	–	725

[a] These tables contain information relating to oil and natural gas exploration and production activities of equity-accounted entities. Amounts relating to the management and ownership of crude oil and natural gas pipelines, LNG liquefaction, transportation operations as well as downstream and other activities are excluded.
[b] Costs of decommissioning are included in capitalized costs at 31 December but are excluded from costs incurred for the year.
[c] Includes exploration and appraisal drilling expenditures, which are capitalized within intangible assets, and geological and geophysical exploration costs, which are charged to income as incurred.
[d] The amounts shown reflect bp's share of equity-accounted entities' costs incurred, and not the costs incurred by bp in acquiring an interest in equity-accounted entities.
[e] Presented net of sales tax.

Oil and natural gas exploration and production activities – continued

										$ million
										2022
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US[h]	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
Capitalized costs at 31 December[a b]										
Gross capitalized costs										
Proved properties	30,010	–	65,870	6	16,720	20,257	–	39,899	6,324	179,086
Unproved properties	397	–	2,976	1,875	2,507	2,535	–	1,622	659	12,571
	30,407	–	68,846	1,881	19,227	22,792	–	41,521	6,983	191,657
Accumulated depreciation	21,757	–	38,205	1,586	13,849	18,207	–	21,642	4,588	119,834
Net capitalized costs	8,650	–	30,641	295	5,378	4,585	–	19,879	2,395	71,823
Costs incurred for the year ended 31 December[a b]										
Acquisition of properties										
Proved	12	–	183	–	–	–	–	245	–	440
Unproved	–	–	37	164	2	14	–	–	–	217
	12	–	220	164	2	14	–	245	–	657
Exploration and appraisal costs[c]	39	–	288	137	235	103	–	73	17	892
Development	318	–	3,825	15	483	1,378	–	1,555	176	7,750
Total costs	369	–	4,333	316	720	1,495	–	1,873	193	9,299
Results of operations for the year ended 31 December[a]										
Sales and other operating revenues[d]										
Third parties	549	–	2,101	420	2,977	3,836	–	6,551	1,588	18,022
Sales between businesses	5,747	–	12,746	–	538	2,146	–	9,932	1,472	32,581
	6,296	–	14,847	420	3,515	5,982	–	16,483	3,060	50,603
Exploration expenditure	11	–	144	109	172	57	–	94	(2)	585
Production costs	498	–	2,102	83	327	592	–	723	107	4,432
Production taxes	1	–	194	–	513	–	–	1,544	73	2,325
Other costs (income)[e]	(210)	(47)	2,926	63	96	206	32	(44)	300	3,322
Depreciation, depletion and amortization	1,242	–	3,122	18	680	2,075	1	2,495	384	10,017
Net impairments and (gains) losses on sale of businesses and fixed assets[f]	(433)	(901)	217	(3)	1,570	(1,189)	1,523	(341)	(43)	400
	1,109	(948)	8,705	270	3,358	1,741	1,556	4,471	819	21,081
Profit (loss) before taxation[g]	5,187	948	6,142	150	157	4,241	(1,556)	12,012	2,241	29,522
Allocable taxes	4,443	–	1,409	50	1,814	886	(5)	6,651	842	16,090
Results of operations	744	948	4,733	100	(1,657)	3,355	(1,551)	5,361	1,399	13,432

[a] These tables contain information relating to oil and natural gas exploration and production activities of subsidiaries, which includes bp's share of oil and natural gas exploration and production activities of joint operations. They do not include any costs relating to the Gulf of Mexico oil spill. Amounts relating to the management and ownership of crude oil and natural gas pipelines, LNG liquefaction and transportation operations are excluded. In addition, bp's midstream activities of marketing and trading of natural gas, power and NGLs in the US, Canada, UK, Asia and Europe are excluded. The most significant midstream pipeline interests include the South Caucasus Pipeline, the Baku-Tbilisi-Ceyhan pipeline, the Trans Adriatic Pipeline and the Trans Anatolian Pipeline. Major LNG activities are located in Trinidad, Indonesia and Australia.

[b] Costs of decommissioning are included in capitalized costs at 31 December but are excluded from costs incurred for the year.

[c] Includes exploration and appraisal drilling expenditures, which are capitalized within intangible assets, and geological and geophysical exploration costs, which are charged to income as incurred.

[d] Presented net of transportation costs, purchases and sales taxes.

[e] Includes property taxes and other government take. The UK region includes a $256-million gain which is offset by corresponding charges primarily in the US region, relating to the group self-insurance programme.

[f] Russia impairments include other businesses with Rosneft, which were reported in the oil production and operation segment. The Rosneft impairment is reported in the other businesses and corporate segment.

[g] Excludes the unwinding of the discount on provisions and payables amounting to $294 million which is included in finance costs in the group income statement.

[h] An amendment has been made to correctly present offsetting movements in proved properties cost and depreciation. The amendment has no impact on reported profit or net book amounts of total proved properties.

Oil and natural gas exploration and production activities – continued

										$ million
										2022
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US	Rest of North America			Russia[a]	Rest of Asia		
Equity-accounted entities (bp share)										
Capitalized costs at 31 December[b c]										
Gross capitalized costs										
Proved properties	–	3,739	–	–	12,000	7,927	–	8,381	–	32,047
Unproved properties	–	611	–	–	120	371	–	–	–	1,102
	–	4,350	–	–	12,120	8,298	–	8,381	–	33,149
Accumulated depreciation	–	1,800	–	–	6,356	572	–	553	–	9,281
Net capitalized costs	–	2,550	–	–	5,764	7,726	–	7,828	–	23,868
Costs incurred for the year ended 31 December[b d e]										
Acquisition of properties[c]										
Proved	–	1,224	–	–	–	–	–	–	–	1,224
Unproved	–	204	–	–	–	–	–	–	–	204
	–	1,428	–	–	–	–	–	–	–	1,428
Exploration and appraisal costs[d]	–	46	–	–	22	60	28	–	–	156
Development[f]	–	(24)	–	–	673	292	428	625	–	1,994
Total costs	–	1,450	–	–	695	352	456	625	–	3,578
Results of operations for the year ended 31 December[b]										
Sales and other operating revenues[g]										
Third parties	–	2,050	–	–	2,171	1,137	–	829	–	6,187
Sales between businesses	–	–	–	–	–	–	6,052	–	–	6,052
	–	2,050	–	–	2,171	1,137	6,052	829	–	12,239
Exploration expenditure	–	39	–	–	–	7	13	–	–	59
Production costs	–	148	–	–	628	246	411	191	–	1,624
Production taxes	–	–	–	–	397	15	4,435	–	–	4,847
Other costs (income)	–	(6)	–	–	16	152	97	20	–	279
Depreciation, depletion and amortization	–	348	–	–	462	572	535	553	–	2,470
Net impairments and losses on sale of businesses and fixed assets	–	164	–	–	–	–	–	–	–	164
	–	693	–	–	1,503	992	5,491	764	–	9,443
Profit (loss) before taxation	–	1,357	–	–	668	145	561	65	–	2,796
Allocable taxes	–	1,098	–	–	77	81	109	66	–	1,431
Results of operations	–	259	–	–	591	64	452	(1)	–	1,365

[a] Amounts reported for Russia in this table are bp's estimated share of the equity-accounted entities, including Rosneft's worldwide activities (of which insignificant amounts relate to outside Russia).
[b] These tables contain information relating to oil and natural gas exploration and production activities of equity-accounted entities. Amounts relating to the management and ownership of crude oil and natural gas pipelines, LNG liquefaction, transportation operations as well as downstream and other activities are excluded.
[c] Costs of decommissioning are included in capitalized costs at 31 December but are excluded from costs incurred for the year.
[d] Includes exploration and appraisal drilling expenditures, which are capitalized within intangible assets, and geological and geophysical exploration costs, which are charged to income as incurred.
[e] The amounts shown reflect bp's share of equity-accounted entities' costs incurred, and not the costs incurred by bp in acquiring an interest in equity-accounted entities.
[f] Rest of Europe development costs are negative due to a true-up of prior period spend.
[g] Presented net of sales tax.

Oil and natural gas exploration and production activities – continued

										$ million
										2021
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US[h]	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
Capitalized costs at 31 December[a b]										
Gross capitalized costs										
Proved properties	30,285	–	62,901	3,385	16,351	51,157	–	45,767	6,641	216,487
Unproved properties	363	–	2,888	2,650	2,517	3,553	–	1,690	650	14,311
	30,648	–	65,789	6,035	18,868	54,710	–	47,457	7,291	230,798
Accumulated depreciation	21,293	–	34,895	5,008	14,393	46,187	–	26,607	4,617	153,000
Net capitalized costs	9,355	–	30,894	1,027	4,475	8,523	–	20,850	2,674	77,798
Costs incurred for the year ended 31 December[a b]										
Acquisition of properties										
Proved	–	–	81	–	–	–	–	–	–	81
Unproved	–	–	18	–	–	–	–	–	–	18
	–	–	99	–	–	–	–	–	–	99
Exploration and appraisal costs[c]	28	–	138	88	90	85	–	159	18	606
Development[d]	262	–	2,541	(50)	586	1,246	–	1,849	162	6,596
Total costs	290	–	2,778	38	676	1,331	–	2,008	180	7,301
Results of operations for the year ended 31 December[a]										
Sales and other operating revenues[e]										
Third parties	182	–	1,700	384	1,330	2,934	2	2,469	994	9,995
Sales between businesses	3,204	–	9,034	1	321	2,172	–	7,064	743	22,539
	3,386	–	10,734	385	1,651	5,106	2	9,533	1,737	32,534
Exploration expenditure	76	–	78	90	29	84	–	52	15	424
Production costs	653	–	1,953	121	371	781	–	967	121	4,967
Production taxes	(35)	–	108	–	266	–	–	918	51	1,308
Other costs (income)[f]	170	(2)	2,506	35	50	121	37	(12)	139	3,044
Depreciation, depletion and amortization	1,260	–	3,153	83	524	2,897	2	2,190	332	10,441
Net impairments and (gains) losses on sale of businesses and fixed assets	(755)	(124)	(1,599)	1,075	(693)	750	–	(2,762)	(1)	(4,109)
	1,369	(126)	6,199	1,404	547	4,633	39	1,353	657	16,075
Profit (loss) before taxation[g]	2,017	126	4,535	(1,019)	1,104	473	(37)	8,180	1,080	16,459
Allocable taxes	302	1	1,127	171	696	363	–	3,055	404	6,119
Results of operations	1,715	125	3,408	(1,190)	408	110	(37)	5,125	676	10,340

[a] These tables contain information relating to oil and natural gas exploration and production activities of subsidiaries, which includes bp's share of oil and natural gas exploration and production activities of joint operations. They do not include any costs relating to the Gulf of Mexico oil spill. Amounts relating to the management and ownership of crude oil and natural gas pipelines, LNG liquefaction and transportation operations are excluded. In addition, bp's midstream activities of marketing and trading of natural gas, power and NGLs in the US, Canada, UK, Asia and Europe are excluded. The most significant midstream pipeline interests include the South Caucasus Pipeline, the Baku-Tbilisi-Ceyhan pipeline, the Trans Adriatic Pipeline and the Trans Anatolian Pipeline. Major LNG activities are located in Trinidad, Indonesia and Australia.

[b] Costs of decommissioning are included in capitalized costs at 31 December but are excluded from costs incurred for the year.

[c] Includes exploration and appraisal drilling expenditures, which are capitalized within intangible assets, and geological and geophysical exploration costs, which are charged to income as incurred.

[d] Development costs in Rest of North America are negative due to a true-up of prior period spend.

[e] Presented net of transportation costs, purchases and sales taxes.

[f] Includes property taxes and other government take. The UK region includes a $213-million gain which is offset by corresponding charges primarily in the US region, relating to the group self-insurance programme.

[g] Excludes the unwinding of the discount on provisions and payables amounting to $325 million which is included in finance costs in the group income statement.

[h] An amendment has been made to correctly present offsetting movements in proved properties cost and depreciation. The amendment has no impact on reported profit or net book amounts of total proved properties.

Oil and natural gas exploration and production activities – continued

										$ million
										2021
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US	Rest of North America			Russia[a]	Rest of Asia		
Equity-accounted entities (bp share)										
Capitalized costs at 31 December[b c]										
Gross capitalized costs										
Proved properties	–	2,507	–	–	11,287	–	24,172	–	–	37,966
Unproved properties	–	383	–	–	98	–	4,362	–	–	4,843
	–	2,890	–	–	11,385	–	28,534	–	–	42,809
Accumulated depreciation	–	1,267	–	–	5,894	–	7,389	–	–	14,550
Net capitalized costs	–	1,623	–	–	5,491	–	21,145	–	–	28,259
Costs incurred for the year ended 31 December[b d e]										
Acquisition of properties[c]										
Proved	–	–	–	–	–	–	–	–	–	–
Unproved	–	–	–	–	–	–	75	–	–	75
	–	–	–	–	–	–	75	–	–	75
Exploration and appraisal costs[d]	–	60	–	–	8	–	196	–	–	264
Development	–	430	–	–	539	–	2,677	–	–	3,646
Total costs	–	490	–	–	547	–	2,948	–	–	3,985
Results of operations for the year ended 31 December[b]										
Sales and other operating revenues[f]										
Third parties	–	1,677	–	–	1,637	–	–	–	–	3,314
Sales between businesses	–	–	–	–	–	–	17,120	–	–	17,120
	–	1,677	–	–	1,637	–	17,120	–	–	20,434
Exploration expenditure	–	105	–	–	3	–	50	–	–	158
Production costs	–	222	–	–	487	–	1,335	–	–	2,044
Production taxes	–	–	–	–	308	–	9,291	–	–	9,599
Other costs (income)	–	26	–	–	34	–	293	–	–	353
Depreciation, depletion and amortization	–	347	–	–	404	–	1,633	–	–	2,384
Net impairments and losses on sale of businesses and fixed assets	–	108	–	–	(32)	–	191	–	–	267
	–	808	–	–	1,204	–	12,793	–	–	14,805
Profit (loss) before taxation	–	869	–	–	433	–	4,327	–	–	5,629
Allocable taxes	–	599	–	–	684	–	852	–	–	2,135
Results of operations	–	270	–	–	(251)	–	3,475	–	–	3,494

a Amounts reported for Russia in this table include bp's share of Rosneft's worldwide activities, including insignificant amounts outside Russia.
b These tables contain information relating to oil and natural gas exploration and production activities of equity-accounted entities. Amounts relating to the management and ownership of crude oil and natural gas pipelines, LNG liquefaction, transportation operations as well as downstream and other activities are excluded.
c Costs of decommissioning are included in capitalized costs at 31 December but are excluded from costs incurred for the year.
d Includes exploration and appraisal drilling expenditures, which are capitalized within intangible assets, and geological and geophysical exploration costs, which are charged to income as incurred.
e The amounts shown reflect bp's share of equity-accounted entities' costs incurred, and not the costs incurred by bp in acquiring an interest in equity-accounted entities.
f Presented net of sales tax.

Movements in estimated net proved reserves

Crude oil[a b]									million barrels 2023
	Europe		North America		South America	Africa	Asia	Australasia	Total
	UK	Rest of Europe	US	Rest of North America					
Subsidiaries									
At 1 January									
Developed	153	–	679	–	4	24	717	20	1,596
Undeveloped	109	–	527	–	5	2	356	1	1,000
	261	–	1,206	–	9	26	1,073	21	2,596
Changes attributable to									
Revisions of previous estimates	(32)	–	(60)	–	(1)	(3)	85	(6)	(15)
Improved recovery	–	–	14	–	–	–	–	–	14
Purchases of reserves-in-place	–	–	14	–	–	–	–	–	14
Discoveries and extensions	–	–	17	–	–	–	1	–	18
Production	(27)	–	(123)	–	(1)	(11)	(107)	(4)	(274)
Sales of reserves-in-place	–	–	(1)	–	–	(6)	–	–	(7)
	(58)	–	(141)	–	(2)	(20)	(21)	(9)	(252)
At 31 December[c]									
Developed	129	–	713	–	3	5	729	11	1,590
Undeveloped	74	–	352	–	5	–	323	1	755
	203	–	1,065	–	7	6	1,052	12	2,345
Equity-accounted entities (bp share)[d]									
At 1 January									
Developed	–	90	–	5	276	127	95	–	592
Undeveloped	–	16	–	7	244	74	1	–	342
	–	106	–	12	520	201	96	–	935
Changes attributable to									
Revisions of previous estimates	–	6	–	–	7	15	43	–	71
Improved recovery	–	21	–	–	4	–	–	–	24
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	22	–	–	19	–	–	–	41
Production	–	(22)	–	(1)	(20)	(30)	(23)	–	(95)
Sales of reserves-in-place	–	–	–	–	–	–	–	–	–
	–	27	–	(1)	9	(14)	20	–	41
At 31 December									
Developed	–	89	–	11	275	99	115	–	588
Undeveloped	–	45	–	–	253	88	2	–	387
	–	133	–	11	528	187	117	–	976
Total subsidiaries and equity-accounted entities (bp share)									
At 1 January									
Developed	153	90	679	5	279	151	812	20	2,188
Undeveloped	109	16	527	7	249	76	358	1	1,343
	261	106	1,206	12	529	227	1,169	21	3,531
At 31 December									
Developed	129	89	713	11	278	104	844	11	2,179
Undeveloped	74	45	352	–	258	88	324	1	1,142
	203	133	1,065	11	536	192	1,168	12	3,321

[a] Crude oil includes condensate and bitumen. Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Includes 2.2 million barrels of crude oil in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[d] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.

Movements in estimated net proved reserves – continued

million barrels

Natural gas liquids[a,b]									2023
	Europe		North America		South America	Africa	Asia	Australasia	Total
	UK	Rest of Europe	US[c]	Rest of North America					
Subsidiaries									
At 1 January									
Developed	6	–	181	–	1	6	–	1	196
Undeveloped	–	–	236	–	–	1	–	–	237
	6	–	417	–	1	7	–	1	432
Changes attributable to									
Revisions of previous estimates	(1)	–	(14)	–	–	–	–	1	(14)
Improved recovery	–	–	15	–	–	–	–	–	16
Purchases of reserves-in-place	–	–	12	–	–	–	–	–	12
Discoveries and extensions	–	–	–	–	–	–	–	–	–
Production[c]	(2)	–	(31)	–	(1)	(1)	–	(1)	(35)
Sales of reserves-in-place	–	–	(3)	–	–	(6)	–	–	(9)
	(3)	–	(20)	–	(1)	(7)	–	–	(31)
At 31 December[d]									
Developed	3	–	180	–	–	–	–	1	184
Undeveloped	–	–	217	–	–	–	–	–	217
	3	–	397	–	–	–	–	1	401
Equity-accounted entities (bp share)[e]									
At 1 January									
Developed	–	4	–	–	3	17	–	–	23
Undeveloped	–	–	–	–	1	9	–	–	10
	–	4	–	–	4	26	–	–	34
Changes attributable to									
Revisions of previous estimates	–	–	–	–	1	(11)	–	–	(10)
Improved recovery	–	1	–	–	–	–	–	–	1
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	4	–	–	–	–	–	–	4
Production	–	(1)	–	–	–	(1)	–	–	(3)
Sales of reserves-in-place	–	–	–	–	–	–	–	–	–
	–	4	–	–	–	(12)	–	–	(8)
At 31 December									
Developed	–	3	–	–	3	14	–	–	19
Undeveloped	–	5	–	–	1	–	–	–	6
	–	8	–	–	4	14	–	–	25
Total subsidiaries and equity-accounted entities (bp share)									
At 1 January									
Developed	6	4	181	–	4	23	–	1	219
Undeveloped	–	–	236	–	1	10	–	–	247
	6	4	417	–	5	33	–	1	466
At 31 December									
Developed	3	3	180	–	3	14	–	1	204
Undeveloped	–	5	217	–	1	–	–	–	223
	3	8	397	–	4	14	–	1	427

a Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
b Because of rounding, some totals may not exactly agree with the sum of their component parts.
c Excludes NGLs from processing plants in which an interest is held of 2 thousand barrels per day for equity-accounted entities.
d Includes 0 million barrels of NGL in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
e Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.

Movements in estimated net proved reserves – continued

									million barrels
Total liquids[a b]									2023
	Europe		North America		South America	Africa	Asia	Australasia	Total
	UK	Rest of Europe	US[c]	Rest of North America					
Subsidiaries									
At 1 January									
Developed	159	–	860	–	5	30	717	20	1,791
Undeveloped	109	–	763	–	5	3	356	1	1,237
	267	–	1,623	–	11	33	1,073	22	3,029
Changes attributable to									
Revisions of previous estimates	(33)	–	(74)	–	(1)	(3)	85	(5)	(30)
Improved recovery	–	–	29	–	–	–	–	–	29
Purchases of reserves-in-place	–	–	25	–	–	–	–	–	25
Discoveries and extensions	–	–	17	–	–	–	1	–	18
Production[c]	(29)	–	(154)	–	(3)	(12)	(107)	(4)	(309)
Sales of reserves-in-place	–	–	(4)	–	–	(12)	–	–	(17)
	(61)	–	(161)	–	(3)	(27)	(21)	(9)	(283)
At 31 December[d]									
Developed	132	–	893	–	3	6	729	11	1,775
Undeveloped	75	–	568	–	5	–	323	1	971
	207	–	1,462	–	7	6	1,052	13	2,746
Equity-accounted entities (bp share)[e]									
At 1 January									
Developed	–	94	–	5	278	144	95	–	616
Undeveloped	–	16	–	7	245	83	1	–	352
	–	110	–	12	523	227	96	–	968
Changes attributable to									
Revisions of previous estimates	–	6	–	–	7	4	43	–	61
Improved recovery	–	22	–	–	4	–	–	–	26
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	26	–	–	19	–	–	–	45
Production	–	(23)	–	(1)	(20)	(31)	(23)	–	(98)
Sales of reserves-in-place	–	–	–	–	–	–	–	–	–
	–	31	–	(1)	9	(27)	20	–	33
At 31 December									
Developed	–	92	–	11	278	113	115	–	608
Undeveloped	–	49	–	–	254	88	2	–	393
	–	141	–	11	532	200	117	–	1,001
Total subsidiaries and equity-accounted entities (bp share)									
At 1 January									
Developed	159	94	860	5	283	174	812	20	2,407
Undeveloped	109	16	763	7	250	86	358	1	1,590
	267	110	1,623	12	534	260	1,169	22	3,997
At 31 December									
Developed	132	92	893	11	281	118	844	11	2,382
Undeveloped	75	49	568	–	259	88	324	1	1,365
	207	141	1,462	11	540	206	1,168	13	3,747

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Excludes NGLs from processing plants in which an interest is held of 2 thousand barrels per day for equity-accounted entities.
[d] Also includes 2.2 million barrels in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[e] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.

Movements in estimated net proved reserves – continued

billion cubic feet

Natural gas[a b]	Europe		North America		South America	Africa	Asia	Australasia	Total
									2023
	UK	Rest of Europe	US	Rest of North America					
Subsidiaries									
At 1 January									
Developed	360	–	2,655	–	1,077	1,021	2,594	1,684	9,392
Undeveloped	41	–	3,154	–	748	221	2,125	407	6,696
	401	–	5,809	–	1,825	1,242	4,719	2,091	16,087
Changes attributable to									
Revisions of previous estimates	(54)	–	212	–	34	42	563	100	897
Improved recovery	9	–	254	–	–	–	–	–	263
Purchases of reserves-in-place	–	–	206	–	–	–	–	–	206
Discoveries and extensions	–	–	5	–	14	–	34	–	53
Production[c]	(100)	–	(560)	–	(439)	(462)	(594)	(284)	(2,439)
Sales of reserves-in-place	–	–	(25)	–	–	(97)	–	–	(123)
	(146)	–	92	–	(391)	(518)	3	(184)	(1,143)
At 31 December[d]									
Developed	221	–	2,672	–	931	518	3,051	1,550	8,942
Undeveloped	34	–	3,229	–	503	207	1,672	358	6,003
	255	–	5,901	–	1,434	724	4,722	1,907	14,944
Equity-accounted entities (bp share)[e]									
At 1 January									
Developed	–	72	–	3	974	534	43	–	1,627
Undeveloped	–	5	–	2	606	154	–	–	767
	–	77	–	5	1,580	689	43	–	2,394
Changes attributable to									
Revisions of previous estimates	–	12	–	–	8	4	5	–	29
Improved recovery	–	25	–	–	22	–	–	–	47
Purchases of reserves-in-place	–	–	–	–	132	–	–	–	132
Discoveries and extensions	–	85	–	–	118	–	–	–	203
Production[c]	–	(22)	–	–	(128)	(41)	(2)	–	(194)
Sales of reserves-in-place	–	–	–	–	(84)	–	–	–	(84)
	–	101	–	(1)	68	(38)	3	–	133
At 31 December									
Developed	–	67	–	4	1,027	463	46	–	1,608
Undeveloped	–	110	–	–	621	188	–	–	919
	–	177	–	4	1,648	651	46	–	2,527
Total subsidiaries and equity-accounted entities (bp share)									
At 1 January									
Developed	360	72	2,655	3	2,051	1,556	2,637	1,684	11,018
Undeveloped	41	5	3,154	2	1,355	375	2,125	407	7,463
	401	77	5,809	5	3,405	1,931	4,762	2,091	18,481
At 31 December									
Developed	221	67	2,672	4	1,958	981	3,096	1,550	10,549
Undeveloped	34	110	3,229	–	1,125	394	1,672	358	6,922
	255	177	5,901	4	3,082	1,375	4,768	1,907	17,471

a Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
b Because of rounding, some totals may not exactly agree with the sum of their component parts.
c Includes 99 billion cubic feet of natural gas consumed in operations, 62 billion cubic feet in subsidiaries, 36 billion cubic feet in equity-accounted entities.
d Includes 430 billion cubic feet of natural gas in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
e Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.

Movements in estimated net proved reserves – continued

Total hydrocarbons[a b]								million barrels of oil equivalent[c]	2023
	Europe		North America		South America	Africa	Asia	Australasia	Total
	UK	Rest of Europe	US[f]	Rest of North America					
Subsidiaries									
At 1 January									
Developed	221	–	1,318	–	191	206	1,164	311	3,411
Undeveloped	116	–	1,306	–	134	41	723	72	2,392
	337	–	2,624	–	325	247	1,887	382	5,802
Changes attributable to									
Revisions of previous estimates	(42)	–	(37)	–	5	5	182	12	125
Improved recovery	2	–	73	–	–	–	–	–	75
Purchases of reserves-in-place	–	–	61	–	–	–	–	–	61
Discoveries and extensions	–	–	18	–	2	–	7	–	27
Production[d e]	(46)	–	(251)	–	(78)	(92)	(210)	(53)	(730)
Sales of reserves-in-place	–	–	(9)	–	–	(29)	–	–	(38)
	(86)	–	(145)	–	(71)	(116)	(21)	(41)	(480)
At 31 December[f]									
Developed	170	–	1,354	–	163	95	1,255	279	3,316
Undeveloped	81	–	1,125	–	91	36	611	63	2,006
	251	–	2,479	–	255	131	1,866	341	5,323
Equity-accounted entities (bp share)[g]									
At 1 January									
Developed	–	106	–	6	446	236	102	–	896
Undeveloped	–	17	–	7	349	110	1	–	485
	–	123	–	13	796	346	103	–	1,381
Changes attributable to									
Revisions of previous estimates	–	8	–	–	9	5	44	–	66
Improved recovery	–	26	–	–	7	–	–	–	34
Purchases of reserves-in-place	–	–	–	–	–	23	–	–	23
Discoveries and extensions	–	41	–	–	39	–	–	–	80
Production[e]	–	(27)	–	(1)	(42)	(38)	(23)	–	(131)
Sales of reserves-in-place	–	–	–	–	(15)	–	–	–	(15)
	–	48	–	(1)	(2)	(11)	21	–	56
At 31 December									
Developed	–	103	–	12	455	192	123	–	885
Undeveloped	–	68	–	–	361	120	2	–	552
	–	172	–	12	816	313	124	–	1,437
Total subsidiaries and equity-accounted entities (bp share)									
At 1 January									
Developed	221	106	1,318	6	637	442	1,266	311	4,307
Undeveloped	116	17	1,306	7	484	151	724	72	2,877
	337	123	2,624	13	1,121	593	1,990	382	7,183
At 31 December									
Developed	170	103	1,354	12	618	287	1,378	279	4,201
Undeveloped	81	68	1,125	–	453	156	613	63	2,558
	251	172	2,479	12	1,071	444	1,991	341	6,759

a Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
b Because of rounding, some totals may not exactly agree with the sum of their component parts.
c 5.8 billion cubic feet of natural gas = 1 million barrels of oil equivalent.
d Excludes NGLs from processing plants in which an interest is held of 2 thousand barrels per day for equity-accounted entities.
e Includes 17 million barrels of oil equivalent of natural gas consumed in operations, 11 million barrels of oil equivalent in subsidiaries, 6 million barrels of oil equivalent in equity-accounted entities.
f Includes 76 million barrels of oil equivalent in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
g Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.

Movements in estimated net proved reserves – continued

Crude oil[a b]	Europe		North America		South America	Africa[c]	Asia		Australasia	Total
										million barrels 2022
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	178	–	705	24	5	117	–	930	28	1,987
Undeveloped	101	–	601	167	7	14	–	449	4	1,343
	279	–	1,306	191	12	131	–	1,379	33	3,330
Changes attributable to										
Revisions of previous estimates	9	–	(11)	–	(1)	1	–	(40)	(4)	(47)
Improved recovery	2	–	(2)	–	–	4	–	–	–	5
Purchases of reserves-in-place	–	–	–	–	–	–	–	3	–	3
Discoveries and extensions	–	–	22	–	–	1	–	–	–	23
Production	(29)	–	(108)	(5)	(2)	(31)	–	(112)	(5)	(292)
Sales of reserves-in-place	–	–	(1)	(185)	–	(80)	–	(157)	(3)	(426)
	(18)	–	(100)	(191)	(3)	(105)	–	(306)	(11)	(734)
At 31 December[e]										
Developed	153	–	679	–	4	24	–	717	20	1,596
Undeveloped	109	–	527	–	5	2	–	356	1	1,000
	261	–	1,206	–	9	26	–	1,073	21	2,596
Equity-accounted entities (bp share)[d]										
At 1 January										
Developed	–	100	–	10	275	3	3,045	1	–	3,434
Undeveloped	–	21	–	12	253	–	2,540	1	–	2,826
	–	121	–	22	527	3	5,585	1	–	6,260
Changes attributable to										
Revisions of previous estimates	–	(17)	–	1	(1)	23	4	(46)	–	(37)
Improved recovery	–	1	–	–	14	25	–	–	–	40
Purchases of reserves-in-place	–	42	–	–	–	165	–	152	–	359
Discoveries and extensions	–	2	–	–	–	–	–	–	–	2
Production	–	(17)	–	(1)	(21)	(12)	(55)	(9)	–	(115)
Sales of reserves-in-place[f]	–	(25)	–	(10)	–	(3)	(5,535)	(1)	–	(5,574)
	–	(15)	–	(10)	(8)	198	(5,585)	95	–	(5,325)
At 31 December										
Developed	–	90	–	5	276	127	–	95	–	592
Undeveloped	–	16	–	7	244	74	–	1	–	342
	–	106	–	12	520	201	–	96	–	935
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	178	100	705	34	280	119	3,045	931	28	5,421
Undeveloped	101	21	601	179	259	14	2,540	450	4	4,169
	279	121	1,306	213	539	134	5,585	1,381	33	9,590
At 31 December										
Developed	153	90	679	5	279	151	–	812	20	2,188
Undeveloped	109	16	527	7	249	76	–	358	1	1,343
	261	106	1,206	12	529	227	–	1,169	21	3,531

[a] Crude oil includes condensate and bitumen. Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Includes 3 million barrels of crude oil in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[d] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[e] Includes assets held for sale in Algeria.
[f] bp's decision to exit its Russia business, including its shareholding in Rosneft, is treated as sales of reserves in place.

Movements in estimated net proved reserves – continued

million barrels

Natural gas liquids[a,b]										2022
	Europe		North America		South America	Africa[c]	Asia		Australasia	Total
	UK	Rest of Europe	US[d]	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	8	–	132	–	2	9	–	–	2	153
Undeveloped	–	–	195	–	19	1	–	–	–	215
	9	–	328	–	21	10	–	–	2	368
Changes attributable to										
Revisions of previous estimates	(1)	–	101	–	(18)	(1)	–	–	–	81
Improved recovery	–	–	16	–	–	1	–	–	–	17
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	–	1	–	–	1	–	–	–	2
Production[d]	(2)	–	(28)	–	(2)	(2)	–	–	(1)	(34)
Sales of reserves-in-place	–	–	(1)	–	–	(1)	–	–	–	(1)
	(2)	–	90	–	(19)	(2)	–	–	(1)	64
At 31 December[e]										
Developed	6	–	181	–	1	6	–	–	1	196
Undeveloped	–	–	236	–	–	1	–	–	–	237
	6	–	417	–	1	7	–	–	1	432
Equity-accounted entities (bp share)[f]										
At 1 January										
Developed	–	6	–	–	2	17	100	–	–	125
Undeveloped	–	–	–	–	–	–	41	–	–	41
	–	6	–	–	2	17	140	–	–	166
Changes attributable to										
Revisions of previous estimates	–	(1)	–	–	2	7	–	–	–	8
Improved recovery	–	–	–	–	–	–	–	–	–	–
Purchases of reserves-in-place	–	2	–	–	–	20	–	–	–	21
Discoveries and extensions	–	–	–	–	–	–	–	–	–	–
Production	–	(1)	–	–	–	(1)	–	–	–	(2)
Sales of reserves-in-place[g]	–	(2)	–	–	–	(17)	(140)	–	–	(159)
	–	(2)	–	–	2	9	(140)	–	–	(132)
At 31 December										
Developed	–	4	–	–	3	17	–	–	–	23
Undeveloped	–	–	–	–	1	9	–	–	–	10
	–	4	–	–	4	26	–	–	–	34
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	8	6	132	–	4	26	100	–	2	278
Undeveloped	–	–	195	–	19	1	41	–	–	256
	9	6	328	–	22	27	140	–	2	534
At 31 December										
Developed	6	4	181	–	4	23	–	–	1	219
Undeveloped	–	–	236	–	1	10	–	–	–	247
	6	4	417	–	5	33	–	–	1	466

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Includes assets held for sale in Algeria.
[d] Excludes NGLs from processing plants in which an interest is held of 2 thousand barrels per day for equity-accounted entities.
[e] Includes 0.4 million barrels of NGL in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[f] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[g] bp's decision to exit its Russia business, including its shareholding in Rosneft, is treated as sales of reserves in place.

Movements in estimated net proved reserves – continued

Total liquids[a,b]										million barrels 2022
	Europe		North America		South America	Africa[c]	Asia		Australasia	Total
	UK	Rest of Europe	US[d]	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	187	–	837	24	7	125	–	930	30	2,141
Undeveloped	101	–	796	167	25	15	–	449	4	1,558
	288	–	1,634	191	32	140	–	1,379	34	3,699
Changes attributable to										
Revisions of previous estimates	8	–	89	–	(19)	–	–	(40)	(4)	34
Improved recovery	2	–	14	–	–	5	–	–	–	22
Purchases of reserves-in-place	1	–	–	–	–	–	–	3	–	3
Discoveries and extensions	–	–	23	–	–	1	–	–	–	25
Production[d]	(31)	–	(136)	(5)	(3)	(34)	–	(112)	(5)	(326)
Sales of reserves-in-place	–	–	(2)	(185)		(80)	–	(157)	(4)	(428)
	(20)	–	(11)	(191)	(22)	(107)	–	(306)	(13)	(670)
At 31 December[e]										
Developed	159	–	860	–	5	30	–	717	20	1,791
Undeveloped	109	–	763	–	5	3	–	356	1	1,237
	267	–	1,623	–	11	33	–	1,073	22	3,029
Equity-accounted entities (bp share)[f]										
At 1 January										
Developed	–	106	–	10	276	20	3,145	1	–	3,558
Undeveloped	–	21	–	12	253	–	2,581	1	–	2,867
	–	127	–	22	529	20	5,726	1	–	6,425
Changes attributable to										
Revisions of previous estimates	–	(18)	–	1	1	30	4	(46)	–	(29)
Improved recovery	–	1	–	–	14	25	–	–	–	40
Purchases of reserves-in-place	–	44	–	–	–	185	–	152	–	380
Discoveries and extensions	–	2	–	–	–	–	–	–	–	2
Production	–	(18)	–	(1)	(21)	(13)	(55)	(9)	–	(117)
Sales of reserves-in-place	–	(27)	–	(10)	–	(19)	(5,675)	(1)	–	(5,733)
	–	(17)	–	(10)	(6)	207	(5,726)	95	–	(5,457)
At 31 December										
Developed	–	94	–	5	278	144	–	95	–	616
Undeveloped	–	16	–	7	245	83	–	1	–	352
	–	110	–	12	523	227	–	96	–	968
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	187	106	837	34	284	146	3,145	931	30	5,699
Undeveloped	101	21	796	179	278	15	2,581	450	4	4,425
	288	127	1,634	213	561	161	5,726	1,381	34	10,124
At 31 December										
Developed	159	94	860	5	283	174	–	812	20	2,407
Undeveloped	109	16	763	7	250	86	–	358	1	1,590
	267	110	1,623	12	534	260	–	1,169	22	3,997

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Includes assets held for sale in Algeria.
[d] Excludes NGLs from processing plants in which an interest is held of 2 thousand barrels per day for equity-accounted entities.
[e] Also includes 3 million barrels in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[f] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[g] bp's decision to exit its Russia business, including its shareholding in Rosneft, is treated as sales of reserves in place.

Movements in estimated net proved reserves – continued

Natural gas[a,b]	Europe		North America		South America	Africa[c]	Asia		Australasia	Total
billion cubic feet 2022	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	455	–	2,401	–	1,152	1,433	–	3,266	1,584	10,291
Undeveloped	45	–	3,404	–	1,147	154	–	2,522	939	8,211
	501	–	5,805	–	2,299	1,587	–	5,788	2,523	18,502
Changes attributable to										
Revisions of previous estimates	6	–	449	–	2	180	–	(575)	(165)	(102)
Improved recovery	1	–	46	–	–	–	–	–	–	47
Purchases of reserves-in-place	2	–	–	–	–	–	–	92	–	94
Discoveries and extensions	–	–	10	–	–	87	–	21	10	128
Production[d]	(109)	–	(493)	–	(476)	(517)	–	(561)	(276)	(2,432)
Sales of reserves-in-place	–	–	(9)	–	–	(93)	–	(47)	–	(149)
	(100)	–	4	–	(474)	(344)	–	(1,069)	(431)	(2,414)
At 31 December[e]										
Developed	360	–	2,655	–	1,077	1,021	–	2,594	1,684	9,392
Undeveloped	41	–	3,154	–	748	221	–	2,125	407	6,696
	401	–	5,809	–	1,825	1,242	–	4,719	2,091	16,087
Equity-accounted entities (bp share)[f]										
At 1 January										
Developed	–	130	–	4	929	689	11,399	–	–	13,149
Undeveloped	–	11	–	4	536	133	7,279	–	–	7,964
	–	140	–	8	1,465	822	18,678	–	–	21,113
Changes attributable to										
Revisions of previous estimates	–	(7)	–	1	162	131	53	–	–	340
Improved recovery	–	–	–	–	82	–	–	–	–	82
Purchases of reserves-in-place	–	14	–	–	–	575	–	45	–	634
Discoveries and extensions	–	4	–	–	–	–	–	–	–	4
Production[d]	–	(25)	–	–	(128)	(36)	(86)	(2)	–	(277)
Sales of reserves-in-place[g]	–	(49)	–	(4)	–	(803)	(18,645)	–	–	(19,501)
	–	(64)	–	(3)	115	(133)	(18,678)	43	–	(18,719)
At 31 December										
Developed	–	72	–	3	974	534	–	43	–	1,627
Undeveloped	–	5	–	2	606	154	–	–	–	767
	–	77	–	5	1,580	689	–	43	–	2,394
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	455	130	2,401	4	2,081	2,121	11,399	3,266	1,584	23,440
Undeveloped	45	11	3,404	4	1,683	287	7,279	2,522	939	16,174
	501	140	5,805	8	3,764	2,408	18,678	5,788	2,523	39,615
At 31 December										
Developed	360	72	2,655	3	2,051	1,556	–	2,637	1,684	11,018
Undeveloped	41	5	3,154	2	1,355	375	–	2,125	407	7,463
	401	77	5,809	5	3,405	1,931	–	4,762	2,091	18,481

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Includes assets held for sale in Algeria.
[d] Includes 122 billion cubic feet of natural gas consumed in operations, 86 billion cubic feet in subsidiaries, 36 billion cubic feet in equity-accounted entities.
[e] Includes 547 billion cubic feet of natural gas in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[f] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[g] bp's decision to exit our Russia business, including our shareholding in Rosneft, is treated as sales of reserves in place.

Movements in estimated net proved reserves – continued

									million barrels of oil equivalent[c]	
Total hydrocarbons[a b]										2022
	Europe		North America		South America	Africa[d]	Asia		Australasia	Total
	UK	Rest of Europe	US[e]	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	265	–	1,251	24	206	372	–	1,494	303	3,915
Undeveloped	109	–	1,383	167	223	41	–	884	166	2,973
	374	–	2,634	191	429	414	–	2,377	469	6,889
Changes attributable to										
Revisions of previous estimates	9	–	167	–	(18)	31	–	(139)	(33)	17
Improved recovery	2	–	22	–	–	5	–	–	–	30
Purchases of reserves-in-place	1	–	–	–	–	–	–	18	–	19
Discoveries and extensions	–	–	25	–	–	16	–	4	2	47
Production[f g]	(50)	–	(221)	(5)	(85)	(123)	–	(209)	(53)	(746)
Sales of reserves-in-place	–	–	(3)	(185)	–	(96)	–	(165)	(4)	(453)
	(37)	–	(10)	(191)	(103)	(167)	–	(491)	(87)	(1,086)
At 31 December[e]										
Developed	221	–	1,318	–	191	206	–	1,164	311	3,411
Undeveloped	116	–	1,306	–	134	41	–	723	72	2,392
	337	–	2,624	–	325	247	–	1,887	382	5,802
Equity-accounted entities (bp share)[h]										
At 1 January										
Developed	–	128	–	11	437	139	5,110	1	–	5,825
Undeveloped	–	23	–	12	345	23	3,836	1	–	4,240
	–	151	–	23	782	162	8,946	1	–	10,065
Changes attributable to										
Revisions of previous estimates	–	(19)	–	1	29	53	13	(46)	–	30
Improved recovery	–	1	–	–	28	25	–	–	–	54
Purchases of reserves-in-place	–	46	–	–	–	284	–	159	–	489
Discoveries and extensions	–	2	–	–	–	–	–	–	–	2
Production[g]	–	(22)	–	(1)	(43)	(19)	(70)	(10)	–	(165)
Sales of reserves-in-place[i]	–	(36)	–	(10)	–	(158)	(8,890)	(1)	–	(9,095)
	–	(28)	–	(11)	14	184	(8,946)	102	–	(8,685)
At 31 December										
Developed	–	106	–	6	446	236	–	102	–	896
Undeveloped	–	17	–	7	349	110	–	1	–	485
	–	123	–	13	796	346	–	103	–	1,381
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	265	128	1,251	35	642	511	5,110	1,494	303	9,740
Undeveloped	109	23	1,383	179	568	65	3,836	884	166	7,214
	374	151	2,634	214	1,210	576	8,946	2,379	469	16,954
At 31 December										
Developed	221	106	1,318	6	637	442	–	1,266	311	4,307
Undeveloped	116	17	1,306	7	484	151	–	724	72	2,877
	337	123	2,624	13	1,121	593	–	1,990	382	7,183

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] 5.8 billion cubic feet of natural gas = 1 million barrels of oil equivalent.
[d] Includes assets held for sale in Algeria.
[e] Includes 76 million barrels of oil equivalent in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[f] Excludes NGLs from processing plants in which an interest is held of 2 thousand barrels per day for equity-accounted entities.
[g] Includes 21 million barrels of oil equivalent of natural gas consumed in operations, 15 million barrels of oil equivalent in subsidiaries, 6 million barrels of oil equivalent in equity-accounted entities.
[h] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[i] bp's decision to exit our Russia business, including our shareholding in Rosneft, is treated as sales of reserves in place.

Movements in estimated net proved reserves – continued

Crude oil[a b]										million barrels 2021
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US[c]	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	162	–	697	37	8	116	–	1,100	34	2,154
Undeveloped	148	–	742	195	9	21	–	547	5	1,666
	309	–	1,438	232	16	137	–	1,647	38	3,819
Changes attributable to										
Revisions of previous estimates	–	–	(46)	(32)	(3)	32	–	(121)	(1)	(171)
Improved recovery	–	–	29	–	–	2	–	–	–	32
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	–	2	–	–	–	–	5	–	7
Production	(30)	–	(113)	(9)	(2)	(41)	–	(116)	(5)	(315)
Sales of reserves-in-place	(1)	–	(5)				–	(36)	–	(41)
	(30)	–	(132)	(41)	(5)	(7)	–	(268)	(6)	(489)
At 31 December[c]										
Developed	178	–	705	24	5	117	–	930	28	1,987
Undeveloped	101	–	601	167	7	14	–	449	4	1,343
	279	–	1,306	191	12	131	–	1,379	33	3,330
Equity-accounted entities (bp share)[d]										
At 1 January										
Developed	–	112	–	5	275	2	3,123	–	–	3,517
Undeveloped	–	24	–	21	237	–	2,493	–	–	2,776
	–	136	–	26	512	3	5,615	1	–	6,293
Changes attributable to										
Revisions of previous estimates	–	9	–	(5)	(4)	1	166	1	–	168
Improved recovery	–	1	–	–	–	–	–	–	–	1
Purchases of reserves-in-place	–	–	–	–	13	–	–	–	–	13
Discoveries and extensions	–	1	–	2	25	–	238	–	–	266
Production	–	(18)	–	(1)	(19)	–	(323)	–	–	(361)
Sales of reserves-in-place	–	(9)	–	–	–	–	(111)	–	–	(119)
	–	(15)	–	(4)	15	–	(30)	1	–	(33)
At 31 December[e f]										
Developed	–	100	–	10	275	3	3,045	1	–	3,434
Undeveloped	–	21	–	12	253	–	2,540	1	–	2,826
	–	121	–	22	527	3	5,585	1	–	6,260
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	162	112	697	42	283	119	3,123	1,100	34	5,671
Undeveloped	148	24	742	215	246	22	2,493	548	5	4,441
	309	136	1,438	258	529	140	5,615	1,648	38	10,112
At 31 December										
Developed	178	100	705	34	280	119	3,045	931	28	5,421
Undeveloped	101	21	601	179	259	14	2,540	450	4	4,169
	279	121	1,306	213	539	134	5,585	1,381	33	9,590

[a] Crude oil includes condensate and bitumen. Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Includes 4 million barrels of crude oil in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[d] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[e] Includes 393 million barrels of crude oil in respect of the 7.16% non-controlling interest in Rosneft, including 22 mmbbl held through bp's interests in Russia other than Rosneft.
[f] Total proved crude oil reserves held as part of our equity interest in Rosneft is 5,490 million barrels, comprising 1 million barrels in Iraq and less than 1 million barrels each in Egypt, Vietnam and Canada, and 5,487 million barrels in Russia.

Movements in estimated net proved reserves – continued

									million barrels	
Natural gas liquids[a b]										2021
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	7	–	115	–	2	13	–	–	2	139
Undeveloped	–	–	218	–	19	1	–	–	–	237
	7	–	333	–	21	14	–	–	2	376
Changes attributable to										
Revisions of previous estimates	5	–	(1)	–	1	(1)	–	–	–	4
Improved recovery	–	–	25	–	–	–	–	–	–	25
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	–	–	–	–	–	–	–	–	–
Production[c]	(2)	–	(25)	–	(1)	(3)	–	–	(1)	(32)
Sales of reserves-in-place	(1)	–	(4)	–	–	–	–	–	–	(5)
	2	–	(5)	–	–	(4)	–	–	–	(8)
At 31 December[d]										
Developed	8	–	132	–	2	9	–	–	2	153
Undeveloped	–	–	195	–	19	1	–	–	–	215
	9	–	328	–	21	10	–	–	2	368
Equity-accounted entities (bp share)[e]										
At 1 January										
Developed	–	6	–	–	2	12	108	–	–	129
Undeveloped	–	1	–	–	–	–	43	–	–	44
	–	7	–	–	2	12	151	–	–	172
Changes attributable to										
Revisions of previous estimates	–	–	–	–	–	6	(9)	–	–	(2)
Improved recovery	–	–	–	–	–	–	–	–	–	–
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	–	–	–	–	–	–	–	–	–
Production[d]	–	(1)	–	–	–	(1)	(1)	–	–	(4)
Sales of reserves-in-place	–	–	–	–	–	–	–	–	–	–
	–	(1)	–	–	–	5	(10)	–	–	(7)
At 31 December[f g]										
Developed	–	6	–	–	2	17	100	–	–	125
Undeveloped	–	–	–	–	–	–	41	–	–	41
	–	6	–	–	2	17	140	–	–	166
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	7	6	115	–	4	25	108	–	2	268
Undeveloped	–	1	218	–	19	1	43	–	–	281
	7	7	333	–	23	26	151	–	2	549
At 31 December										
Developed	8	6	132	–	4	26	100	–	2	278
Undeveloped	–	–	195	–	19	1	41	–	–	256
	9	6	328	–	22	27	140	–	2	534

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Excludes NGLs from processing plants in which an interest is held of 3 thousand barrels per day for equity-accounted entities.
[d] Includes 6 million barrels of NGL in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[e] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[f] Includes 3 million barrels of NGLs in respect of the 2.3% non-controlling interest in Rosneft.
[g] Total proved NGL reserves held as part of our equity interest in Rosneft is 140 million barrels, comprising less than 1 million barrels in Canada, and 140 million barrels in Russia.

Movements in estimated net proved reserves – continued

Total liquids[a,b]	UK	Rest of Europe	US[c]	Rest of North America	South America	Africa	Russia	Rest of Asia	Australasia	Total
										million barrels 2021
	Europe		North America		South America	Africa	Asia		Australasia	Total
Subsidiaries										
At 1 January										
Developed	168	–	812	37	10	129	–	1,100	36	2,293
Undeveloped	148	–	959	195	27	22	–	547	5	1,903
	316	–	1,771	232	37	151	–	1,647	41	4,196
Changes attributable to										
Revisions of previous estimates	5	–	(47)	(32)	(2)	31	–	(121)	(1)	(167)
Improved recovery	–	–	54	–	–	2	–	–	–	57
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	–	2	–	–	–	–	5	–	7
Production[c]	(32)	–	(138)	(9)	(3)	(44)	–	(116)	(5)	(348)
Sales of reserves-in-place	(1)	–	(9)	–	–	–	–	(36)	–	(46)
	(29)	–	(137)	(41)	(5)	(11)	–	(268)	(6)	(497)
At 31 December[d]										
Developed	187	–	837	24	7	125	–	930	30	2,141
Undeveloped	101	–	796	167	25	15	–	449	4	1,558
	288	–	1,634	191	32	140	–	1,379	34	3,699
Equity-accounted entities (bp share)[e]										
At 1 January										
Developed	–	118	–	5	277	15	3,231	–	–	3,645
Undeveloped	–	25	–	21	237	–	2,535	–	–	2,819
	–	143	–	26	514	15	5,766	1	–	6,465
Changes attributable to										
Revisions of previous estimates	–	10	–	(5)	(4)	7	157	1	–	166
Improved recovery	–	1	–	–	–	–	–	–	–	1
Purchases of reserves-in-place	–	–	–	–	13	–	–	–	–	13
Discoveries and extensions	–	1	–	2	25	–	238	–	–	266
Production[d]	–	(19)	–	(1)	(19)	(1)	(325)	–	–	(365)
Sales of reserves-in-place	–	(9)	–	–	–	–	(111)	–	–	(120)
	–	(16)	–	(4)	15	5	(40)	1	–	(39)
At 31 December[f,g]										
Developed	–	106	–	10	276	20	3,145	1	–	3,558
Undeveloped	–	21	–	12	253	–	2,581	1	–	2,867
	–	127	–	22	529	20	5,726	1	–	6,425
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	168	118	812	42	287	144	3,231	1,100	36	5,938
Undeveloped	148	25	959	215	265	23	2,535	548	5	4,722
	316	143	1,771	258	552	166	5,766	1,648	41	10,661
At 31 December										
Developed	187	106	837	34	284	146	3,145	931	30	5,699
Undeveloped	101	21	796	179	278	15	2,581	450	4	4,425
	288	127	1,634	213	561	161	5,726	1,381	34	10,124

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Excludes NGLs from processing plants in which an interest is held of 3 thousand barrels per day for equity-accounted entities.
[d] Also includes 10 million barrels in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[e] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[f] Includes 396 million barrels of liquids in respect of the non-controlling interest in Rosneft, including 22 mmboe held through bp's interests in Russia other than Rosneft.
[g] Total proved liquid reserves held as part of our equity interest in Rosneft is 5,630 million barrels, comprising 1 million barrels in Iraq, less than 1 million barrels each in Canada, Egypt and Vietnam and 5,628 million barrels in Russia.

Movements in estimated net proved reserves – continued

Natural gas[a b]										billion cubic feet 2021
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	306	–	1,921	–	1,567	1,382	–	3,883	2,058	11,118
Undeveloped	51	–	3,423	–	1,964	158	–	3,641	1,029	10,267
	358	–	5,344	–	3,531	1,541	–	7,524	3,087	21,385
Changes attributable to										
Revisions of previous estimates	254	–	717	1	(767)	537	–	(66)	(285)	390
Improved recovery	–	–	247	–	–	–	–	–	–	247
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	–	1	–	–	25	–	116	–	142
Production[c]	(103)	–	(445)	(1)	(465)	(516)	–	(489)	(279)	(2,297)
Sales of reserves-in-place	(7)	–	(60)	–	–	–	–	(1,298)	–	(1,365)
	143	–	461	–	(1,232)	46	–	(1,736)	(564)	(2,883)
At 31 December[d]										
Developed	455	–	2,401	–	1,152	1,433	–	3,266	1,584	10,291
Undeveloped	45	–	3,404	–	1,147	154	–	2,522	939	8,211
	501	–	5,805	–	2,299	1,587	–	5,788	2,523	18,502
Equity-accounted entities (bp share)[e]										
At 1 January										
Developed	–	141	–	2	965	600	11,373	7	–	13,088
Undeveloped	–	21	–	6	513	142	7,312	–	–	7,994
	–	162	–	8	1,478	741	18,685	7	–	21,082
Changes attributable to										
Revisions of previous estimates	–	8	–	(2)	(115)	152	422	–	–	467
Improved recovery	–	4	–	–	–	–	–	–	–	4
Purchases of reserves-in-place	–	–	–	–	3	–	–	–	–	3
Discoveries and extensions	–	1	–	1	222	–	151	–	–	375
Production[c]	–	(25)	–	–	(124)	(72)	(478)	(3)	–	(702)
Sales of reserves-in-place	–	(9)	–	–	–	–	(102)	(4)	–	(115)
	–	(22)	–	(1)	(13)	80	(7)	(7)	–	31
At 31 December[f g]										
Developed	–	130	–	4	929	689	11,399	–	–	13,149
Undeveloped	–	11	–	4	536	133	7,279	–	–	7,964
	–	140	–	8	1,465	822	18,678	–	–	21,113
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	306	141	1,921	2	2,532	1,982	11,373	3,890	2,058	24,206
Undeveloped	51	21	3,423	6	2,477	300	7,312	3,641	1,029	18,260
	358	162	5,344	8	5,009	2,282	18,685	7,531	3,087	42,467
At 31 December										
Developed	455	130	2,401	4	2,081	2,121	11,399	3,266	1,584	23,440
Undeveloped	45	11	3,404	4	1,683	287	7,279	2,522	939	16,174
	501	140	5,805	8	3,764	2,408	18,678	5,788	2,523	39,615

a Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
b Because of rounding, some totals may not exactly agree with the sum of their component parts.
c Includes 135 billion cubic feet of natural gas consumed in operations, 83 billion cubic feet in subsidiaries, 52 billion cubic feet in equity-accounted entities.
d Includes 690 billion cubic feet of natural gas in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
e Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
f Includes 1,656 billion cubic feet of natural gas in respect of the 10.20% non-controlling interest in Rosneft including 621 billion cubic feet held through bp's interests in Russia other than Rosneft.
g Total proved gas reserves held as part of our equity interest in Rosneft is 16,233 billion cubic feet, comprising less than 1 billion cubic feet in Vietnam and Canada, 376 billion cubic feet in Egypt and 15,857 billion cubic feet in Russia.

Movements in estimated net proved reserves – continued

Total hydrocarbons[a,b]									million barrels of oil equivalent[c] 2021
	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US[d]	Rest of North America			Russia	Rest of Asia		
Subsidiaries										
At 1 January										
Developed	221	–	1,143	37	280	367	–	1,770	391	4,210
Undeveloped	157	–	1,549	195	366	50	–	1,175	182	3,673
	378	–	2,692	232	646	417	–	2,945	573	7,883
Changes attributable to										
Revisions of previous estimates	49	–	77	(32)	(134)	123	–	(132)	(50)	(100)
Improved recovery	–	–	97	–	–	2	–	–	–	99
Purchases of reserves-in-place	–	–	–	–	–	–	–	–	–	–
Discoveries and extensions	–	–	2	–	–	4	–	25	–	31
Production[e,f]	(50)	–	(214)	(9)	(83)	(133)	–	(200)	(54)	(744)
Sales of reserves-in-place	(3)	–	(19)	–	–	–	–	(260)	–	(282)
	(4)	–	(58)	(41)	(217)	(3)	–	(567)	(104)	(994)
At 31 December[d]										
Developed	265	–	1,251	24	206	372	–	1,494	303	3,915
Undeveloped	109	–	1,383	167	223	41	–	884	166	2,973
	374	–	2,634	191	429	414	–	2,377	469	6,889
Equity-accounted entities (bp share)[g]										
At 1 January										
Developed	–	142	–	5	443	118	5,192	1	–	5,902
Undeveloped	–	29	–	22	326	25	3,796	–	–	4,198
	–	171	–	27	769	143	8,988	2	–	10,100
Changes attributable to										
Revisions of previous estimates	–	11	–	(5)	(24)	33	230	1	–	246
Improved recovery	–	1	–	–	–	–	–	–	–	1
Purchases of reserves-in-place	–	–	–	–	14	–	–	–	–	14
Discoveries and extensions	–	1	–	2	63	–	264	–	–	330
Production[f]	–	(23)	–	(1)	(41)	(14)	(407)	–	–	(486)
Sales of reserves-in-place	–	(11)	–	–	–	–	(128)	(1)	–	(139)
	–	(20)	–	(4)	12	19	(42)	–	–	(34)
At 31 December[h,i]										
Developed	–	128	–	11	437	139	5,110	1	–	5,825
Undeveloped	–	23	–	12	345	23	3,836	1	–	4,240
	–	151	–	23	782	162	8,946	1	–	10,065
Total subsidiaries and equity-accounted entities (bp share)										
At 1 January										
Developed	221	142	1,143	43	724	485	5,192	1,771	391	10,112
Undeveloped	157	29	1,549	217	692	74	3,796	1,175	182	7,871
	378	171	2,692	259	1,415	560	8,988	2,946	573	17,982
At 31 December										
Developed	265	128	1,251	35	642	511	5,110	1,494	303	9,740
Undeveloped	109	23	1,383	179	568	65	3,836	884	166	7,214
	374	151	2,634	214	1,210	576	8,946	2,379	469	16,954

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] 5.8 billion cubic feet of natural gas = 1 million barrels of oil equivalent.
[d] Includes 76 million barrels of oil equivalent in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[e] Excludes NGLs from processing plants in which an interest is held of 3 thousand barrels per day for equity-accounted entities.
[f] Includes 23 million barrels of oil equivalent of natural gas consumed in operations, 14 million barrels of oil equivalent in subsidiaries, 9 million barrels of oil equivalent in equity-accounted entities.
[g] Volumes of equity-accounted entities include volumes of equity-accounted investments of those entities.
[h] Includes 682 million barrels of oil equivalent in respect of the 8.09% non-controlling interest in Rosneft, including 129mmboe held through bp's interests in Russia other than Rosneft.
[i] Total proved reserves held as part of our equity interest in Rosneft is 8,429 million barrels of oil equivalent, comprising less than 1 million barrels of oil equivalent in Canada and Vietnam, 1 million barrels of oil equivalent in Iraq, 65 million barrels of oil equivalent in Egypt and 8,362 million barrels of oil equivalent in Russia.

Standardized measure of discounted future net cash flows and changes therein relating to proved oil and gas reserves

The following tables set out the standardized measure of discounted future net cash flows, and changes therein, relating to crude oil and natural gas production from the group's estimated proved reserves. This information is prepared in compliance with FASB Oil and Gas Disclosures requirements.

Future net cash flows have been prepared on the basis of certain assumptions which may or may not be realized. These include the timing of future production, the estimation of crude oil and natural gas reserves and the application of average crude oil and natural gas prices and exchange rates from the previous 12 months. Furthermore, both proved reserves estimates and production forecasts are subject to revision as further technical information becomes available and economic conditions change. bp cautions against relying on the information presented because of the highly arbitrary nature of the assumptions on which it is based and its lack of comparability with the historical cost information presented in the financial statements.

									$ million
									2023
	Europe		North America		South America	Africa	Asia	Australasia	Total
	UK	Rest of Europe	US	Rest of North America					
At 31 December									
Subsidiaries									
Future cash inflows[a]	19,400	–	100,200	–	6,800	4,400	118,300	18,000	267,100
Future production cost[b]	11,900	–	37,500	–	4,300	600	39,600	4,500	98,400
Future development cost[b]	1,200	–	12,100	–	1,000	500	8,500	1,400	24,700
Future taxation[c]	4,100	–	8,400	–	500	1,100	49,900	3,800	67,800
Future net cash flows	2,200	–	42,200	–	1,000	2,200	20,300	8,300	76,200
10% annual discount[d]	900	–	16,300	–	(300)	400	6,300	2,600	26,200
Standardized measure of discounted future net cash flows[e]	1,300	–	25,900	–	1,300	1,800	14,000	5,700	50,000
Equity-accounted entities (bp share)[f]									
Future cash inflows[a]	–	13,700	–	–	44,600	15,200	9,000	–	82,500
Future production cost[b]	–	3,700	–	–	20,700	5,500	4,700	–	34,600
Future development cost[b]	–	2,100	–	–	5,200	2,300	3,100	–	12,700
Future taxation[c]	–	6,000	–	–	5,900	2,100	400	–	14,400
Future net cash flows	–	1,900	–	–	12,800	5,300	800	–	20,800
10% annual discount[d]	–	500	–	–	7,600	1,700	200	–	10,000
Standardized measure of discounted future net cash flows	–	1,400	–	–	5,200	3,600	600	–	10,800
Total subsidiaries and equity-accounted entities									
Standardized measure of discounted future net cash flows	1,300	1,400	25,900	–	6,500	5,400	14,600	5,700	60,800

The following are the principal sources of change in the standardized measure of discounted future net cash flows:

			$ million
	Subsidiaries	Equity-accounted entities (bp share)	Total subsidiaries and equity-accounted entities
Sales and transfers of oil and gas produced, net of production costs	(36,500)	(6,500)	(43,000)
Development costs for the current year as estimated in previous year	6,000	2,200	8,200
Extensions, discoveries and improved recovery, less related costs	500	800	1,300
Net changes in prices and production cost	(50,800)	(7,100)	(57,900)
Revisions of previous reserves estimates	2,500	1,300	3,800
Net change in taxation	30,000	5,100	35,100
Future development costs	(1,000)	(300)	(1,300)
Net change in purchase and sales of reserves-in-place	(800)	–	(800)
Addition of 10% annual discount	9,100	1,400	10,500
Total change in the standardized measure during the year[g]	**(41,000)**	**(3,100)**	**(44,100)**

[a] The marker prices used were Brent $83.27/bbl, Henry Hub $2.58/mmBtu.
[b] Production costs, which include production taxes, and development costs relating to future production of proved reserves are based on the continuation of existing economic conditions. Future decommissioning costs are included.
[c] Taxation is computed with reference to appropriate year-end statutory corporate income tax rates.
[d] Future net cash flows from oil and natural gas production are discounted at 10% regardless of the group assessment of the risk associated with its producing activities.
[e] Non-controlling interests in BP Trinidad and Tobago LLC amounted to $392 million.
[f] The standardized measure of discounted future net cash flows of equity-accounted entities includes standardized measure of discounted future net cash flows of equity-accounted investments of those entities.
[g] Total change in the standardized measure during the year includes the effect of exchange rate movements.

Standardized measure of discounted future net cash flows and changes therein relating to proved oil and gas reserves – continued

										$ million
										2022
	Europe			North America	South America	Africa		Asia	Australasia	Total
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		
At 31 December										
Subsidiaries										
Future cash inflows[a]	34,900	–	154,500	–	16,400	9,400	–	151,500	23,600	390,300
Future production cost[b]	13,600	–	36,000	–	5,300	1,300	–	42,700	5,200	104,100
Future development cost[b]	1,100	–	12,200	–	1,400	700	–	8,800	1,900	26,100
Future taxation[c]	12,600	–	19,800	–	5,000	1,900	–	65,200	5,500	110,000
Future net cash flows	7,600	–	86,500	–	4,700	5,500	–	34,800	11,000	150,100
10% annual discount[d]	3,400	–	38,200	–	700	1,000	–	11,800	4,000	59,100
Standardized measure of discounted future net cash flows[e]	4,200	–	48,300	–	4,000	4,500	–	23,000	7,000	91,000
Equity-accounted entities (bp share)[f]										
Future cash inflows[a]	–	12,800	–	–	49,800	20,500	–	9,200	–	92,300
Future production cost[b]	–	2,100	–	–	22,000	6,300	–	4,900	–	35,300
Future development cost[b]	–	400	–	–	4,900	2,800	–	3,000	–	11,100
Future taxation[c]	–	8,100	–	–	7,100	4,300	–	400	–	19,900
Future net cash flows	–	2,200	–	–	15,800	7,100	–	900	–	26,000
10% annual discount[d]	–	400	–	–	9,300	2,200	–	200	–	12,100
Standardized measure of discounted future net cash flows[g]	–	1,800	–	–	6,500	4,900	–	700	–	13,900
Total subsidiaries and equity-accounted entities										
Standardized measure of discounted future net cash flows[h]	4,200	1,800	48,300	–	10,500	9,400	–	23,700	7,000	104,900

The following are the principal sources of change in the standardized measure of discounted future net cash flows:

			$ million
	Subsidiaries	Equity-accounted entities (bp share)	Total subsidiaries and equity-accounted entities
Sales and transfers of oil and gas produced, net of production costs	(22,800)	(4,600)	(27,400)
Development costs for the current year as estimated in previous year	5,500	1,800	7,300
Extensions, discoveries and improved recovery, less related costs	1,600	900	2,500
Net changes in prices and production cost	80,800	11,100	91,900
Revisions of previous reserves estimates	(18,300)	(2,700)	(21,000)
Net change in taxation	(23,000)	1,400	(21,600)
Future development costs	(2,100)	(800)	(2,900)
Net change in purchase and sales of reserves-in-place	(4,300)	(34,800)	(39,100)
Addition of 10% annual discount	6,700	3,800	10,500
Total change in the standardized measure during the year[i]	24,100	(23,900)	200

[a] The marker prices used were Brent $101.24/bbl, Henry Hub $6.19/mmBtu.
[b] Production costs, which include production taxes, and development costs relating to future production of proved reserves are based on the continuation of existing economic conditions. Future decommissioning costs are included.
[c] Taxation is computed with reference to appropriate year-end statutory corporate income tax rates.
[d] Future net cash flows from oil and natural gas production are discounted at 10% regardless of the group assessment of the risk associated with its producing activities.
[e] Non-controlling interests in BP Trinidad and Tobago LLC amounted to $1,216 million.
[f] The standardized measure of discounted future net cash flows of equity-accounted entities includes standardized measure of discounted future net cash flows of equity-accounted investments of those entities.
[g] No reserves are reported for Russia following bp's announcement that it will exit the country. The impact of this change is primarily included within sales of reserves-in-place.
[h] Includes future net cash flows for assets held for sale at 31 December 2022.
[i] Total change in the standardized measure during the year includes the effect of exchange rate movements.

Standardized measure of discounted future net cash flows and changes therein relating to proved oil and gas reserves – continued

	Europe		North America		South America	Africa	Asia		Australasia	Total
										$ million
										2021
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		
At 31 December										
Subsidiaries										
Future cash inflows[a]	25,600	–	108,600	8,400	10,300	17,100	–	126,800	20,400	317,200
Future production cost[b]	13,400	–	33,900	3,700	4,300	4,800	–	46,100	6,400	112,600
Future development cost[b]	1,100	–	12,600	1,100	1,300	1,100	–	12,400	2,100	31,700
Future taxation[c]	4,300	–	10,100	500	1,400	2,900	–	44,100	4,100	67,400
Future net cash flows	6,800	–	52,000	3,100	3,300	8,300	–	24,200	7,800	105,500
10% annual discount[d]	2,100	–	21,600	1,700	600	1,400	–	8,300	2,900	38,600
Standardized measure of discounted future net cash flows[e]	4,700	–	30,400	1,400	2,700	6,900	–	15,900	4,900	66,900
Equity-accounted entities (bp share)[f]										
Future cash inflows[a]	–	10,500	–	–	40,100	–	370,000	–	–	420,600
Future production cost[b]	–	3,400	–	–	16,600	–	254,000	–	–	274,000
Future development cost[b]	–	400	–	–	3,900	–	24,300	–	–	28,600
Future taxation[c]	–	5,100	–	–	6,100	–	15,600	–	–	26,800
Future net cash flows	–	1,600	–	–	13,500	–	76,100	–	–	91,200
10% annual discount[d]	–	400	–	–	7,800	–	45,200	–	–	53,400
Standardized measure of discounted future net cash flows[g h]	–	1,200	–	–	5,700	–	30,900	–	–	37,800
Total subsidiaries and equity-accounted entities										
Standardized measure of discounted future net cash flows[i]	4,700	1,200	30,400	1,400	8,400	6,900	30,900	15,900	4,900	104,700

The following are the principal sources of change in the standardized measure of discounted future net cash flows:

	Subsidiaries	Equity-accounted entities (bp share)	Total subsidiaries and equity-accounted entities
			$ million
Sales and transfers of oil and gas produced, net of production costs	(12,200)	(7,700)	(19,900)
Development costs for the current year as estimated in previous year	5,800	3,600	9,400
Extensions, discoveries and improved recovery, less related costs	1,700	2,400	4,100
Net changes in prices and production cost	71,900	29,700	101,600
Revisions of previous reserves estimates	(8,800)	1,000	(7,800)
Net change in taxation	(17,900)	(7,200)	(25,100)
Future development costs	(3,200)	(5,300)	(8,500)
Net change in purchase and sales of reserves-in-place	(3,100)	(600)	(3,700)
Addition of 10% annual discount	3,000	2,000	5,000
Total change in the standardized measure during the year[j]	37,200	17,900	55,100

[a] The marker prices used were Brent $69.23/bbl, Henry Hub $3.61/mmBtu.
[b] Production costs, which include production taxes, and development costs relating to future production of proved reserves are based on the continuation of existing economic conditions. Future decommissioning costs are included.
[c] Taxation is computed with reference to appropriate year-end statutory corporate income tax rates.
[d] Future net cash flows from oil and natural gas production are discounted at 10% regardless of the group assessment of the risk associated with its producing activities.
[e] Non-controlling interests in BP Trinidad and Tobago LLC amounted to $820 million.
[f] The standardized measure of discounted future net cash flows of equity-accounted entities includes standardized measure of discounted future net cash flows of equity-accounted investments of those entities.
[g] Non-controlling interests in Rosneft amounted to $2,422 million in Russia.
[h] No equity-accounted future cash flows in Africa because proved reserves are received as a result of contractual arrangements, with no associated costs.
[i] Includes future net cash flows for assets held for sale at 31 December 2021.
[j] Total change in the standardized measure during the year includes the effect of exchange rate movements. Exchange rate effects arising from the translation of our share of Rosneft changes to US dollars are included within 'Net changes in prices and production cost'.

Operational and statistical information

The following tables present operational and statistical information related to production, drilling, productive wells and acreage. Figures include amounts attributable to assets held for sale.

Crude oil and natural gas production

The following table shows crude oil, natural gas liquids and natural gas production for the years ended 31 December 2023, 2022 and 2021.

Production for the year[a b]

	Europe		North America		South America	Africa	Asia		Australasia	Total
	UK	Rest of Europe	US	Rest of North America			Russia[c]	Rest of Asia		
Subsidiaries[d]										
Crude oil[e]										thousand barrels per day
2023	**74**	**–**	**335**	**–**	**4**	**29**	**–**	**289**	**10**	**741**
2022	80	–	296	15	5	83	–	307	12	797
2021	82	–	308	25	5	110	–	318	13	860
Natural gas liquids										thousand barrels per day
2023	**5**	**–**	**88**	**–**	**4**	**2**	**–**	**4**	**2**	**104**
2022	5	–	76	–	4	6	–	–	2	93
2021	5	–	70	–	4	7	–	–	2	88
Natural gas[f]										million cubic feet per day
2023	**247**	**–**	**1,486**	**–**	**1,191**	**1,236**	**–**	**1,578**	**774**	**6,512**
2022	271	–	1,291	–	1,276	1,353	–	1,485	752	6,428
2021	236	–	1,197	2	1,260	1,332	–	1,279	760	6,067
Equity-accounted entities (bp share)										
Crude oil[e]										thousand barrels per day
2023	**–**	**–**	**–**	**–**	**57**	**82**	**–**	**62**	**–**	**261**
2022	–	47	–	–	59	33	150	25	–	314
2021	–	48	–	–	55	1	887	–	–	991
Natural gas liquids										thousand barrels per day
2023	**–**	**3**	**–**	**–**	**1**	**6**	**–**	**–**	**–**	**9**
2022	–	2	–	–	1	5	–	–	–	9
2021	–	3	–	–	1	6	3	–	–	12
Natural gas[f]										million cubic feet per day
2023	**–**	**58**	**–**	**–**	**299**	**74**	**–**	**–**	**–**	**432**
2022	–	66	–	–	296	64	248	–	–	674
2021	–	66	–	–	284	77	1,423	–	–	1,849

[a] Production excludes royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[b] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[c] Amounts reported for Russia include bp's share of Rosneft worldwide activities, including insignificant amounts outside Russia.
[d] All of the oil and liquid production from Canada is bitumen.
[e] Crude oil includes condensate.
[f] Natural gas production excludes gas consumed in operations.

Operational and statistical information – continued

Productive oil and gas wells and acreage

The following tables show the number of gross and net productive oil and natural gas wells and total gross and net developed and undeveloped oil and natural gas acreage in which the group and its equity-accounted entities had interests as at 31 December 2023. A 'gross' well or acre is one in which a whole or fractional working interest is owned, while the number of 'net' wells or acres is the sum of the whole or fractional working interests in gross wells or acres. Productive wells are producing wells and wells capable of production. Developed acreage is the acreage within the boundary of a field, on which development wells have been drilled, which could produce the reserves; while undeveloped acres are those on which wells have not been drilled or completed to a point that would permit the production of commercial quantities, whether or not such acres contain proved reserves.

		Europe		North America		South America	Africa	Asia	Australasia	Total[a]
		UK	Rest of Europe	US	Rest of North America					
Number of productive wells at 31 December 2023										
Oil wells[b]	– gross	114	123	1,390	8	5,367	864	2,979	–	10,845
	– net	65	20	736	2	2,644	79	619	–	4,166
Gas wells[c]	– gross	36	10	4,681	–	1,184	91	172	100	6,274
	– net	8	2	2,520	–	413	42	65	23	3,073
Oil and natural gas acreage at 31 December 2023										thousands of acres
Developed	– gross	71	82	1,903	8	1,330	690	1,334	838	6,255
	– net	41	13	1,024	1	381	120	277	157	2,014
Undeveloped[d]	– gross	561	333	3,900	11,011	9,402	18,538	5,604	9,660	59,010
	– net	410	53	3,320	6,966	4,193	8,631	1,743	6,676	31,991

[a] Because of rounding, some totals may not exactly agree with the sum of their component parts.
[b] Includes approximately 166 gross (32 net) multiple completion wells (more than one formation producing into the same well bore).
[c] Includes approximately 116 gross (94 net) multiple completion wells. If one of the multiple completions in a well is an oil completion, the well is classified as an oil well.
[d] Undeveloped acreage includes leases and concessions.

Net oil and gas wells completed or abandoned

The following table shows the number of net productive and dry exploratory and development oil and natural gas wells completed or abandoned in the years indicated by the group and its equity-accounted entities. Productive wells include wells in which hydrocarbons were encountered and the drilling or completion of which, in the case of exploratory wells, has been suspended pending further drilling or evaluation. A dry well is one found to be incapable of producing hydrocarbons in sufficient quantities to justify completion.

	Europe		North America		South America	Africa	Asia		Australasia	Total[a]
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		
2023										
Exploratory										
Productive	–	–	2.0	–	–	–	–	0.8	0.4	3.2
Dry	0.5	–	0.8	0.5	–	–	–	0.2	–	2.0
Development										
Productive	2.6	0.6	141.9	0.1	6.2	4.2	–	39.7	0.4	195.6
Dry	–	–	–	–	–	–	–	0.4	–	0.4
2022										
Exploratory										
Productive	–	–	0.5	1.0	1.0	0.6	–	0.5	0.3	4.0
Dry	–	–	–	1.2	0.3	0.1	–	0.8	–	2.3
Development										
Productive	0.9	1.5	137.2	0.3	71.4	2.8	–	39.0	1.4	254.5
Dry	–	–	1.1	–	0.5	0.1	–	1.1	–	2.8
2021										
Exploratory										
Productive	–	–	0.2	–	1.1	1.4	16.3	1.2	–	20.2
Dry	–	–	0.6	–	–	1.4	–	0.3	0.4	2.7
Development										
Productive	2.4	0.6	107.2	0.8	69.4	2.5	285.2	27.3	1.3	496.6
Dry	–	0.1	7.3	–	0.7	–	–	0.1	–	8.2

[a] Because of rounding, some totals may not exactly agree with the sum of their component parts.

Operational and statistical information – continued

Drilling and production activities in progress

The following table shows the number of exploratory and development oil and natural gas wells in the process of being drilled by the group and its equity-accounted entities as of 31 December 2023. Suspended development wells and long-term suspended exploratory wells are also included in the table.

	Europe		North America		South America	Africa	Asia	Australasia	Total[a]
	UK	Rest of Europe	US	Rest of North America					
At 31 December 2023									
Exploratory									
Gross	–	–	–	–	–	1.0	10.0	–	11.0
Net	–	–	–	–	–	0.1	1.9	–	2.0
Development									
Gross	5.0	3.1	161.0	–	25.0	9.0	97.0	1.0	301.1
Net	3.1	0.5	118.7	–	4.6	3.1	18.9	0.4	149.3

[a] Because of rounding, some totals may not exactly agree with the sum of their component parts.

Parent company financial statements of BP p.l.c.

Company income statement

For the year ended 31 December			$ million
	Note	2023	2022
Dividend income		18,133	29,005
Interest and other income		6,007	2,115
Total income		24,140	31,120
Administrative and other expenses		(747)	(563)
Net impairment of fixed asset investments	2	–	3,433
Loss on termination of operations		(8)	–
Profit (loss) before interest and taxation		23,385	33,990
Interest payable to subsidiaries		(9,280)	(3,567)
Net finance income (expense) relating to pensions	4	391	165
Profit (loss) before taxation		14,496	30,588
Taxation	6	(126)	(48)
Profit (loss) for the year		14,370	30,540

Company statement of comprehensive income

For the year ended 31 December			$ million
	Note	2023	2022
Profit (loss) for the year		14,370	30,540
Other comprehensive income			
Items that may be reclassified subsequently to profit or loss			
Currency translation differences		407	(1,037)
		407	(1,037)
Items that will not be reclassified to profit or loss			
Remeasurements of the net pension liability or asset	4	(1,877)	(1,530)
Income tax relating to items that will not be reclassified	6	513	931
		(1,364)	(599)
Other comprehensive income		(957)	(1,636)
Total comprehensive income		13,413	28,904

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

Company balance sheet

At 31 December	Note	2023	$ million 2022
Non-current assets			
Investments	2	**177,741**	165,483
Receivables	3	**853**	772
Defined benefit pension plan surpluses	4	**6,631**	7,716
		185,225	173,971
Current assets			
Receivables	3	**5,864**	10,646
Cash and cash equivalents		**208**	85
		6,072	10,731
Total assets		**191,297**	184,702
Current liabilities			
Payables	5	**11,707**	5,864
Net current (liabilities)/assets		**(5,635)**	4,867
Total assets less current liabilities		**179,590**	178,838
Non-current liabilities			
Payables	5	**53,583**	53,489
Deferred tax liabilities	6	**2,305**	2,692
Defined benefit pension plan deficits	4	**143**	128
		56,031	56,309
Total liabilities		**67,738**	62,173
Net assets		**123,559**	122,529
Capital and reserves[a]			
Profit and loss account			
Brought forward		**88,541**	73,324
Profit (loss) for the year		**14,370**	30,540
Other movements		**(14,718)**	(15,323)
		88,193	88,541
Called-up share capital	7	**4,496**	4,795
Share premium account		**13,815**	13,692
Other capital and reserves		**17,055**	15,501
		123,559	122,529

[a] See Statement of changes in equity on page 277 for further information.

The financial statements on pages 275-334 were approved and signed by the chief executive officer on 8 March 2024 having been duly authorized to do so by the board of directors:

Murray Auchincloss Chief executive officer

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

Company statement of changes in equity[a]

$ million

	Share capital	Share premium account	Capital redemption reserve	Merger reserve	Treasury shares	Foreign currency translation reserve	Profit and loss account	Total equity
At 1 January 2023	**4,795**	**13,692**	**2,180**	**26,509**	**(12,154)**	**(1,034)**	**88,541**	**122,529**
Profit (loss) for the year	–	–	–	–	–	–	**14,370**	**14,370**
Other comprehensive income	–	–	–	–	–	**407**	**(1,364)**	**(957)**
Total comprehensive income	–	–	–	–	–	**407**	**13,006**	**13,413**
Dividends	–	–	–	–	–	–	**(4,830)**	**(4,830)**
Repurchases of ordinary share capital[a]	**(316)**	–	**316**	–	–	–	**(8,167)**	**(8,167)**
Share-based payments, net of tax	**17**	**123**	–	–	**831**	–	**(357)**	**614**
At 31 December 2023	**4,496**	**13,815**	**2,496**	**26,509**	**(11,323)**	**(627)**	**88,193**	**123,559**
At 1 January 2022	5,215	12,745	1,705	26,509	(12,623)	3	73,324	106,878
Profit (loss) for the year	–	–	–	–	–	–	30,540	30,540
Other comprehensive income	–	–	–	–	–	(1,037)	(599)	(1,636)
Total comprehensive income	–	–	–	–	–	(1,037)	29,941	28,904
Dividends	–	–	–	–	–	–	(4,365)	(4,365)
Repurchases of ordinary share capital	(475)	–	475	–	–	–	(10,493)	(10,493)
Share-based payments, net of tax	14	168	–	–	469	–	134	785
New issue of ordinary share capital	41	779	–	–	–	–	–	820
At 31 December 2022	4,795	13,692	2,180	26,509	(12,154)	(1,034)	88,541	122,529

[a] See Note 7 for further information.

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

Notes on financial statements

1. Material accounting policy information, significant judgements, estimates and assumptions

Authorization of financial statements and statement of compliance with Financial Reporting Standard 101 'Reduced Disclosure Framework' (FRS 101)

The financial statements of BP p.l.c. for the year ended 31 December 2023 were approved and signed by the chief executive officer on 8 March 2024 having been duly authorized to do so by the board of directors. The company meets the definition of a qualifying entity under Financial Reporting Standard 100 'Application of Financial Reporting Requirements' (FRS 100) issued by the Financial Reporting Council. Accordingly, these financial statements have been prepared in accordance with FRS 101 and in accordance with the provisions of the UK Companies Act 2006.

Basis of preparation

The financial statements have been prepared on a going concern basis and in accordance with the Companies Act 2006 and applicable UK accounting standards.

The financial statements have been prepared under the historical cost convention. Historical cost is generally based on the fair value of the consideration given in exchange for the assets.

As permitted by FRS 101, the company has taken advantage of the disclosure exemptions available in relation to:

(a) the requirements of paragraphs 10(d), 10(f), 16, 38A, 38B, 38C, 38D, 40A, 40B, 40C, 40D, 111 and 134 to 136 of IAS 1 'Presentation of Financial Statements';

(b) the requirements in paragraph 38 of IAS 1 'Presentation of Financial Statements' to present comparative information in respect of paragraph 79(a)(iv) of IAS 1.

(c) the requirements of IAS 7 'Statement of Cash Flows';

(d) the requirements of paragraphs 30 and 31 of IAS 8 'Accounting Policies, Changes in Accounting Estimates and Errors' in relation to standards not yet effective;

(e) the requirements of paragraphs 17 and 18A of IAS 24 'Related Party Disclosures';

(f) the requirements of IAS 24 'Related Party Disclosures' to disclose related party transactions entered into between two or more members of a group, provided that any subsidiary which is a party to the transaction is wholly owned by such a member;

(g) the requirements of paragraphs 130(f)(ii), 130(f)(iii), 134(d) to 134(f) and 135(c)-135(e) of IAS 36, Impairment of Assets;

(h) the requirements of paragraphs 45(b) and 46 to 52 of IFRS 2 'Share-based Payment';

(i) the requirements of IFRS 7 'Financial Instruments: Disclosures'; and

(j) the requirement of the second sentence of paragraph 110 and paragraphs 113(a), 114,115, 118, 119(a) to (c), 120 to 127 and 129 of IFRS 15 'Revenue from Contracts with Customers'.

Where required, equivalent disclosures are given in the consolidated financial statements of BP p.l.c.

The financial statements are presented in US dollars and all values are rounded to the nearest million dollars ($ million), except where otherwise indicated.

In May 2023, the IASB issued International Tax Reform – Pillar Two Model Rules - Amendments to IAS 12 Income Taxes to clarify the application of IAS 12 to tax legislation enacted or substantively enacted to implement Pillar Two of the Organisation for Economic Co-operation and Development's Base Erosion and Profit Shifting project, which aims to address the tax challenges arising from the digitalisation of the economy. The amendments include a mandatory temporary exception from accounting for deferred tax on such tax law. In July 2023, the UK government enacted legislation to implement the Pillar Two rules. The legislation is effective for bp from 1 January 2024 and includes an income inclusion rule and a domestic minimum tax, which together are designed to ensure a minimum effective tax rate of 15%. Similar legislation is being enacted by other governments around the world. In line with the amendments to IAS 12, the exception from accounting for deferred tax for the Pillar Two rules has been applied and there are no impacts on the financial statements for 2023. Based on an assessment of historic data and forecasts for the year ending 31 December 2024, the company does not expect a material exposure to Pillar Two income taxes for the year ending 31 December 2024.

There are no new IFRS standards or amended standards or interpretations adopted from 1 January 2023 onwards, including the amendments to IAS 12 'Income Taxes' described above and IFRS 17 'Insurance Contracts,' that have a significant impact on the financial statements. Further, there are no new or amended standards not yet adopted that are expected to have a material impact.

Material accounting policy information: use of judgements, estimates and assumptions

Inherent in the application of many of the accounting policies used in preparing the financial statements is the need for bp management to make judgements, estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities, and the reported amounts of revenues and expenses. Actual outcomes could differ from the estimates and assumptions used. The accounting judgements and estimates that have a significant impact on the results of the group are set out in boxed text below, and should be read in conjunction with the information provided in the Notes on financial statements.

The areas requiring the most significant judgement and estimation in the preparation of the financial statements are the recoverability of investment carrying values and pensions. Judgements and estimates, not all of which are significant, made in assessing the impact of the current economic and geopolitical environment, and climate change and the transition to a lower carbon economy on the financial statements are also set out in boxed text below. Where an estimate has a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year this is specifically noted within the boxed text.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Judgements and estimates made in assessing the impact of climate change and the transition to a lower carbon economy

Climate change and the transition to a lower carbon economy were considered in preparing the financial statements. These may have significant impacts on the currently reported amounts of the company"s assets and liabilities discussed below

Impairment of investments

The recoverable amounts of the company's investments in subsidiaries are closely linked to the carrying value of property, plant and equipment and goodwill in the individual subsidiaries. The energy transition is likely to impact the future prices of commodities such as oil and natural gas which in turn may affect the recoverable amount of property, plant and equipment and goodwill in the oil and gas industry. Management's best estimate of oil and natural gas price assumptions for value-in-use impairment testing for all subsidiaries were revised during 2023. Prices disclosed are in real 2022 terms. The near term Brent oil assumption was held constant at $70 per barrel to reflect near-term supply constraints before declining after 2030 to $50 per barrel by 2050 continuing to reflect the assumption that as the energy system decarbonizes, falling oil demand will cause oil prices to decline. The price assumptions for Henry Hub gas up to 2050 were held constant at $4.00 per mmBtu reflecting an assumption that declining domestic demand in the US is offset by higher LNG exports. The revised assumptions for Brent oil and Henry Hub gas sit within the range of external scenarios considered by management and are in line with a range of transition paths consistent with the temperature goal of the Paris climate change agreement, of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Judgements and estimates made in assessing the impact of the geopolitical and economic environment

In preparing the financial statements, the following areas involving judgement and estimates were identified as most relevant with regards to the impact of the current geopolitical and economic environment.

Going concern

Liquidity and financing is managed within bp under pooled group-wide arrangements which include the company. As part of assuring the going concern basis of preparation for the company, the ability and intent of the bp group to support the company has been taken into consideration. The most recent bp group financial statements (see pages 137 to 246) continue to be prepared on a going concern basis. Forecast liquidity has been assessed under a number of stressed scenarios, including a significant decline in oil prices over the 12-month period. Reverse stress tests performed indicated that the group will continue to operate as a going concern for at least 12 months from the date of approval of the consolidated financial statements even if the Brent price fell to zero. In addition, group management of bp have confirmed that the existing intra-group funding and liquidity arrangements as currently constituted are expected to continue for the foreseeable future, being no less than twelve months from the approval of these financial statements. No material uncertainties over going concern or significant judgements or estimates in the assessment were identified. Accordingly, the company will be able to draw on support from the bp group for the foreseeable future and these financial statements have therefore been prepared on the going concern basis.

Pensions

The volatility in the financial markets during 2023 impacted the assumptions used for determining the fair value of plan assets and the present value of defined benefit obligations in the company's defined benefit pension plans. See significant estimate: pensions and Note 4 for further information.

Investments

Investments in subsidiaries are recorded at cost. The company assesses investments for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. If any such indication of impairment exists, the company makes an estimate of its recoverable amount. Where the carrying amount of an investment exceeds its recoverable amount, the investment is considered impaired and is written down to its recoverable amount. Where these circumstances have reversed, the impairment previously made is reversed to the extent of the original cost of the investment.

Significant judgements and estimates: recoverability of asset carrying values

Determination as to whether, and by how much, an investment holding company chain (defined as each direct subsidiary and its own investments), is impaired involves management estimates on highly uncertain matters such as the effects of inflation and deflation on operating expenses, discount rates, capital expenditure, carbon pricing (where applicable), production profiles, reserves and resources, and future commodity prices, including the outlook for global or regional market supply-and-demand conditions for crude oil, natural gas and refined products. Determination as to whether, and by how much, an asset or CGU is impaired involves similar estimates.

The recoverable amount of an asset is the higher of its value in use and its fair value less costs of disposal. Fair value less costs of disposal may be determined based on expected sales proceeds or similar recent market transaction data. Details of impairment charges recognized in the profit and loss account and the carrying amounts of investments are shown in Note 2. The estimates for assumptions made in impairment tests in 2023 relating to discount rates and oil and gas properties are discussed below. It is impracticable to reliably determine the extent of any impacts of changes in the assumptions used to determine the recoverable amounts of the company's investments given the diverse characteristics of the underlying assets and the interdependency of the various inputs. Changes in the economic environment including as a result of the energy transition or other facts and circumstances may necessitate revisions to these assumptions and could result in a material change to the carrying values of the group's assets within the next financial year.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Discount rates

For discounted cash flow calculations, future cash flows are adjusted for risks specific to the CGU. Value-in-use calculations are typically discounted using a pre-tax discount rate based upon the cost of funding the Company derived from an established model, adjusted to a pre-tax basis and incorporating a market participant capital structure and country risk premiums. Fair value less costs of disposal discounted cash flow calculations use a post-tax discount rate.

The discount rates applied in impairment tests are reassessed each year and, in 2023, the post-tax discount rate was 8% (2022 7%) other than for renewable power assets. Where the CGU is located in a country that was judged to be higher risk, an additional premium of 1% to 4% was reflected in the post-tax discount rate (2022 1% to 2%). The judgement of classifying a country as higher risk and the applicable premium takes into account various economic and geopolitical factors. The pre-tax discount rate, other than for renewable power assets, typically ranged from 9% to 20% (2022 7% to 18%) depending on the risk premium and applicable tax rate in the geographic location of the CGU. For renewable power assets tested on a value-in-use basis in 2023 (including those in equity accounted entities), where the risk profile of expected cash flows supports a lower rate, tests were performed using a post-tax WACC-based discount rate of 6.5%. For assets tested in 2022, the tests were performed on a fair value less costs of disposal basis using a post-tax cost of equity-based discount rate of 6%.

Oil and natural gas properties

For upstream oil and natural gas properties in subsidiaries, expected future cash flows are estimated using management's best estimate of future oil and natural gas prices, and production and reserves and certain resources volumes. The estimated future level of production in all impairment tests is based on assumptions about future commodity prices, production and development costs, field decline rates, current fiscal regimes and other factors. A change in the discount rate, reserves, resources or the oil and gas price assumptions in the next financial year may result in a recoverable amount of one or more of these assets above or below the current carrying amount and therefore there is a risk of impairment reversals or charges in that period. Management consider that reasonably possible changes in the discount rate or forecast revenue, arising from a change in oil and natural gas prices and/or production could result in a material change in their carrying amounts within the next financial year.

Oil and natural gas prices

The price assumptions used for value in use impairment testing are based on those used for investment appraisal. bp's carbon emissions cost assumptions and their interrelationship with oil and gas prices are described in 'Judgements and estimates made in assessing the impact of climate change and the transition to a lower carbon economy' on page 170. The investment appraisal price assumptions are recommended by the senior vice president economic & energy insights after considering a range of external price sets and supply and demand profiles associated with various energy transition scenarios. They are reviewed and approved by management. As a result of the current uncertainty over the pace of transition to lower-carbon supply and demand and the social, political and environmental actions that will be taken to meet the goals of the Paris climate change agreement, the scenarios considered include those where those goals are met as well as those where they are not met.

During the year, bp's price assumptions applied in value-in-use impairment testing (in real 2022 terms) for the near term Brent oil assumption was held constant at $70 per barrel to reflect near term supply constraints before declining after 2030 to $50 per barrel by 2050 continuing to reflect the assumption that as the energy system decarbonises, falling oil demand will cause oil prices to decline. The price assumptions for Henry Hub gas up to 2050 were held constant at $4.00 per mmBtu reflecting an assumption that declining domestic demand in the US is offset by higher LNG exports. These price assumptions are derived from the central case investment appraisal assumptions, adjusted where applicable to reflect short-term market conditions (see page 30). A summary of the group's revised price assumptions for Brent oil and Henry Hub gas, applied in 2023 and 2022, in real 2022 terms, is provided below. The assumptions represent management's best estimate of future prices at the balance sheet date, which sit within the range of external scenarios considered as appropriate for the purpose. They are considered by bp to be in line with a range of transition paths consistent with the temperature goal of the Paris climate change agreement, of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels. However, they do not correspond to any specific Paris-consistent scenario. An inflation rate of 2% (2022 2%) is applied to determine the price assumptions in nominal terms.

2023 price assumptions	**2024**	**2025**	**2030**	**2040**	**2050**
Brent oil ($/bbl)	70	70	70	63	50
Henry Hub gas ($/mmBtu)	4.00	4.00	4.00	4.00	4.00

2022 price assumptions	**2023**	**2025**	**2030**	**2040**	**2050**
Brent oil ($/bbl)	78	71	71	59	46
Henry Hub gas ($/mmBtu)	4.08	4.08	4.08	3.57	3.57

Oil and natural gas reserves

The majority of bp's reserves and resources that support the carrying value of the company's subsidiaries holding upstream oil and gas properties are expected to be produced over the next 12 years.

In addition to oil and natural gas prices, significant technical and commercial assessments are required to determine the Company's estimated oil and natural gas reserves. Reserves estimates are regularly reviewed and updated. Factors such as the availability of geological and engineering data, reservoir performance data, acquisition and divestment activity and drilling of new wells all impact on the determination of the Company's estimates of its oil and natural gas reserves. bp bases its reserves estimates on the requirement of reasonable certainty with rigorous technical and commercial assessments based on conventional industry practice and regulatory requirements.

Reserves assumptions for value-in-use tests reflect the reserves and resources that management currently intend to develop. The recoverable amount of oil and gas properties is determined using a combination of inputs including reserves, resources and production volumes. Risk factors may be applied to reserves and resources which do not meet the criteria to be treated as proved or probable.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Foreign currency translation

The functional and presentation currency of the financial statements is US dollars. Transactions in foreign currencies are initially recorded in the functional currency of those entities at the spot exchange rate on the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated into the functional currency at the spot exchange rate on the balance sheet date. Any resulting exchange differences are included in the income statement. Non-monetary items, other than those measured at fair value, are not retranslated subsequent to initial recognition.

Exchange adjustments arising when the opening net assets and the profits for the year retained by a non-US dollar functional currency branch are translated into US dollars and are recognized in a separate component of equity and reported in other comprehensive income. Income statement transactions are translated into US dollars using the average exchange rate for the reporting period.

Financial guarantees

The company enters into financial guarantee contracts with its subsidiaries. The liability for a financial guarantee contract is initially measured at fair value and subsequently measured at the higher of the contract's estimated expected credit loss and the amount initially recognized less, where appropriate, cumulative amortization.

Pensions and other post-retirement benefits

The defined benefit pension plans are plans that share risks between entities under common control. In each instance BP p.l.c. is the principal employer and carries the whole plan surplus or deficit on its balance sheet.The cost of providing benefits under the company's defined benefit plans is determined separately for each plan using the projected unit credit method, which attributes entitlement to benefits to the current period to determine current service cost and to the current and prior periods to determine the present value of the defined benefit obligation. Past service costs, resulting from either a plan amendment or a curtailment (a reduction in future obligations as a result of a material reduction in the plan membership), are recognized immediately when the company becomes committed to a change.

Net interest expense relating to pensions and other post-retirement benefits, which is recognized in the income statement, represents the net change in present value of plan obligations and the value of plan assets resulting from the passage of time, and is determined by applying the discount rate to the present value of the benefit obligation at the start of the year, and to the fair value of plan assets at the start of the year, taking into account expected changes in the obligation or plan assets during the year.

Remeasurements of the defined benefit liability and asset, comprising actuarial gains and losses, and the return on plan assets (excluding amounts included in net interest described above) are recognized within other comprehensive income in the period in which they occur and are not subsequently reclassified to profit and loss.

The defined benefit pension plan surplus or deficit recognized on the balance sheet for each plan comprises the difference between the present value of the defined benefit obligation (using a discount rate based on high quality corporate bonds) and the fair value of plan assets out of which the obligations are to be settled directly. Fair value is based on market price information and, in the case of quoted securities, is the published bid price. Defined benefit pension plan surpluses are only recognized to the extent they are recoverable, either by way of a refund from the plan or reductions in future contributions to the plan.

Contributions to defined contribution plans are recognized in the income statement in the period in which they become payable.

Significant estimate: pensions and other post-retirement benefits

Accounting for defined benefit pensions involves making significant estimates when measuring the company's pension plan surpluses and deficits. These estimates require assumptions to be made about many uncertainties.

Pension assumptions are reviewed by management at the end of each year. These assumptions are used to determine the projected benefit obligation at the year end and hence the surpluses and deficits recorded on the company's balance sheet, and pension expense for the following year. The assumptions used are provided in Note 4.

The assumptions that are the most significant to the amounts reported are the discount rate, inflation rate and mortality levels. Assumptions about these variables are based on the environment in each country. The assumptions used vary from year to year, with resultant effects on future net income and net assets. Changes to some of these assumptions, in particular the discount rate and inflation rate, could result in material changes to the carrying amounts of the company's pension obligations within the next financial year for the UK plan. Any differences between these assumptions and the actual outcome will also affect future net income and net assets.

The values ascribed to these assumptions and a sensitivity analysis of the impact of changes in the assumptions on the benefit expense and obligation used are provided in Note 4.

Income taxes

Income tax expense represents the sum of current tax and deferred tax.

Income tax is recognized in the income statement, except to the extent that it relates to items recognized in other comprehensive income or directly in equity, in which case the related tax is recognized in other comprehensive income or directly in equity.

Current tax is based on the taxable profit for the period. Taxable profit differs from net profit as reported in the income statement because it is determined in accordance with the rules established by the applicable taxation authorities. It therefore excludes items of income or expense that are taxable or deductible in other periods as well as items that are never taxable or deductible. The company's liability for current tax is calculated using tax rates and laws that have been enacted or substantively enacted by the balance sheet date.

Deferred tax is provided, using the liability method, on temporary differences at the balance sheet date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes. Deferred tax liabilities are recognized for taxable temporary differences.

Deferred tax assets are only recognized to the extent that it is probable that they will be realized in the future.

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

1. Material accounting policy information, significant judgements, estimates and assumptions – continued

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the balance sheet date. Deferred tax assets and liabilities are not discounted. See Note 6 for further details.

Financial assets

Financial assets are recognized initially at fair value, normally being the transaction price. In the case of financial assets not measured at fair value through profit or loss, directly attributable transaction costs are also included. The subsequent measurement of financial assets depends on their classification, as set out below. The company derecognizes financial assets when the contractual rights to the cash flows expire or the rights to receive cash flows have been transferred to a third party and either substantially all of the risks and rewards of the asset have been transferred, or substantially all the risks and rewards of the asset have neither been retained nor transferred but control of the asset has been transferred. This includes the derecognition of receivables for which discounting arrangements are entered into.

Financial assets measured at amortized cost

Financial assets are classified as measured at amortized cost when they are held in a business model the objective of which is to collect contractual cash flows and the contractual cash flows represent solely payments of principal and interest. Such assets are carried at amortized cost using the effective interest method if the time value of money is significant. Gains and losses are recognized in profit or loss when the assets are derecognized or impaired and when interest income is recognized using the effective interest method. This category of financial assets includes trade and other receivables.

Cash equivalents

Cash equivalents are held for the purpose of meeting short-term cash commitments and are short-term highly liquid investments that are readily convertible to known amounts of cash, are subject to insignificant risk of changes in value and generally have a maturity of three months or less from the date of acquisition. Cash equivalents are classified as financial assets measured at amortized cost or, in the case of certain money market funds, fair value through profit or loss.

Financial liabilities

All financial liabilities held by the company are classified as financial liabilities measured at amortized cost. Financial liabilities include other payables, accruals, and amounts payable to subsidiaries. The company determines the classification of its financial liabilities at initial recognition.

Financial liabilities measured at amortized cost

All financial liabilities are initially recognized at fair value, net of directly attributable transaction costs. For interest-bearing loans and borrowings this is typically equivalent to the fair value of the proceeds received, net of issue costs associated with the borrowing.

After initial recognition, financial liabilities are subsequently measured at amortized cost using the effective interest method. Amortized cost is calculated by taking into account any issue costs and any discount or premium on settlement. Gains and losses arising on the repurchase, settlement or cancellation of liabilities are recognized in interest and other income and finance costs respectively.

2. Investments

			$ million
	Subsidiaries*	Associates	
	Shares	Shares	Total
Cost			
At 1 January 2023	**169,148**	**9**	**169,157**
Additions	**12,266**	**–**	**12,266**
Disposals	**(8)**	**–**	**(8)**
At 31 December 2023	**181,406**	**9**	**181,415**
Amounts provided			
At 1 January 2023	**3,674**	**–**	**3,674**
At 31 December 2023	**3,674**	**–**	**3,674**
Cost			
At 1 January 2022	166,760	9	166,769
Additions	2,388	–	2,388
At 31 December 2022	169,148	9	169,157
Amounts provided			
At 1 January 2022	7,107	–	7,107
Additions	–	–	–
Reversals	(3,433)	–	(3,433)
At 31 December 2022	3,674	–	3,674
At 31 December 2023	**177,732**	**9**	**177,741**
At 31 December 2022	165,474	9	165,483

At 31 December 2023, the carrying amount of the company's net assets of $123.6 billion (2022 $122.5 billion) exceeded the group's market capitalisation of $102.2 billion (2022 $105.8 billion). As a result, management performed an impairment test of the company's major investments in line with the requirements of IAS 36 Impairment of Assets. Management considered the performance of investments and impairment tests performed by the company's subsidiaries. Whilst the headroom determined by these tests has reduced, which is largely related to impacts of updates to price assumptions and discount rate assumptions, no impairment was determined to be required in respect of the company's investments in subsidiaries.

The more important subsidiaries of the company at 31 December 2023 and the percentage holding of ordinary share capital (to the nearest whole number) are set out below. For a full list of related undertakings see Note 14.

Subsidiaries	%	Country of incorporation	Principal activities
International			
BP Global Investments Limited	100	England & Wales	Investment holding
BP International Limited	100	England & Wales	Integrated oil operations
Burmah Castrol PLC	100	Scotland	Investment holding
BP Gamma Holdings Limited	100	England & Wales	Investment holding
Canada			
BP Holdings Canada Limited	100	England & Wales	Investment holding
US			
BP Holdings North America Limited	100	England & Wales	Investment holding

The carrying value of the investment in BP International Limited at 31 December 2023 was $76,244 million (2022 $76,281 million).

The carrying value of the investment in BP Gamma Holdings Limited at 31 December 2023 was $10,000 million (2022 Nil).

3. Receivables

				$ million
		2023		2022
	Current	Non-current	Current	Non-current
Amounts receivable from subsidiaries	**5,862**	**853**	10,641	772
Amounts receivable from associates	**2**	**–**	3	–
Other receivables	**–**	**–**	2	–
	5,864	**853**	10,646	772

The company has current receivables of $4,161 million on Internal Funding Accounts (IFAs) receivable from BP International Limited (2022 $10,218 million). These balances form a key part of the bp group's liquidity and funding arrangements under its centralised treasury funding model. Whilst IFA credit balances are legally repayable on demand, in practice they have no termination date. IFA debit balances can also be accessed by BP International Limited at short notice.

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

4. Pensions

The pension obligation consists primarily of a funded final salary pension plan in the UK under which retired employees draw the majority of their benefit as an annuity. This pension plan is governed by a corporate trustee whose board is composed of four member-nominated directors, four company-nominated directors, an independent director, and an independent chair nominated by the company. The trustee board is required by law to act in the best interests of the plan participants and is responsible for setting certain policies, such as investment policies of the plan. The plan was closed to new joiners in 2010 and was closed to future accrual on 30 June 2021. Employees in the UK are eligible for membership of a defined contribution plan.

The level of contributions to funded defined benefit plans is the amount needed to provide adequate funds to meet pension obligations as they fall due.

For the primary UK plan there is a funding agreement between the company and the trustee. On a three year cycle a schedule of contributions is agreed covering the next five years. The schedule of contributions is next scheduled to be updated after the 31 December 2023 formal actuarial valuation. No contractually committed funding was due at 31 December 2023. The closure of the defined benefit plan to future accrual reduces the need for funding and the plan's expected future funding volatility.

The surplus relating to the primary UK pension plan is recognized on the balance sheet on the basis that the company is entitled to a refund of any remaining assets once all members have left the plan.

The obligation and cost of providing the pension benefits is assessed annually using the projected unit credit method. The date of the most recent actuarial review was 31 December 2023. The UK plans are subject to a formal actuarial valuation every 3 years. The most recent formal actuarial valuation of the main pension plan was as at 31 December 2020; the 31 December 2023 valuation is currently underway.

The material financial assumptions used for estimating the benefit obligations of the plans are set out below. The assumptions are reviewed by management at the end of each year and are used to evaluate the accrued benefit obligation at 31 December and pension expense for the following year.

Financial assumptions used to determine benefit obligation		%
	2023	2022
Discount rate for plan liabilities	**4.8**	5.0
Rate of increase for pensions in payment	**2.8**	2.9
Rate of increase in deferred pensions	**2.8**	2.9
Inflation for plan liabilities	**3.0**	3.1

Financial assumptions used to determine benefit expense		%
	2023	2022
Discount rate for plan other finance expense	**5.0**	1.8

The discount rate assumption is based on third-party AA corporate bond indices and we use yields that reflect the maturity profile of the expected benefit payments. The inflation rate assumption is based on the difference between the yields on index-linked and fixed-interest long-term government bonds. The inflation assumption is used to determine the rate of increase for pensions in payment and the rate of increase in deferred pensions where there is such an increase.

In addition to the financial assumptions, we regularly review the demographic and mortality assumptions. The mortality assumptions reflect best practice in the UK and have been chosen with regard to the latest available published tables adjusted to reflect the experience of the plans and an extrapolation of past longevity improvements into the future. For the main pension plan the mortality assumptions are as follows:

Mortality assumptions		Years
	2023	2022
Life expectancy at age 60 for a male currently aged 60	**27.4**	26.9
Life expectancy at age 60 for a male currently aged 40	**29.2**	28.5
Life expectancy at age 60 for a female currently aged 60	**29.2**	28.8
Life expectancy at age 60 for a female currently aged 40	**30.6**	30.6

The assets of the primary plan are held in a trust, the primary objective of which is to accumulate assets sufficient to meet the obligations of the plan. The assets of the trusts are invested in a manner consistent with fiduciary obligations and principles that reflect current practices in portfolio management.

A proportion of the assets are held in equities, which are expected to generate a higher level of return over the long term, with an acceptable level of risk. In order to provide reasonable assurance that no single security or type of security has an unwarranted impact on the total portfolio, the investment portfolios are highly diversified.

The trustee's long-term investment objective for the primary UK plan as it matures is to invest in assets whose value changes in the same way as the plan liabilities, in order to reduce the level of funding risk. To move towards this objective, the UK plan uses a liability driven investment (LDI) approach for part of the portfolio, investing primarily in government bonds to achieve this matching effect for the most significant plan liability assumptions of interest rate and inflation rate. This is partly funded by short-term sale and repurchase agreements, whereby the plan borrows money using existing bonds as security and which will be bought back at a specified price at an agreed future date. The funds raised are used to invest in further bonds to increase the proportion of assets which match the plan liabilities. The borrowings are shown separately in the analysis of pension plan assets in the table below.

For the primary UK pension plan there is an agreement with the trustee to increase the proportion of assets with liability matching characteristics over time primarily by reducing the proportion of plan assets held as equities and increasing the proportion held as bonds. During 2023, the asset allocation policy switched 2% of plan assets from equities to bonds (2022 2%).

4. Pensions – continued

The company's asset allocation policy for the primary plan is as follows:

Asset category	%
Total equity (including private equity)	**8**
Bonds/cash (including LDI)	**85**
Property/real estate	**7**

The amounts invested under the LDI programme by the primary UK pension plan as at 31 December 2023 were $6,215 million (2022 $3,981 million) of government-issued nominal bonds and $13,177 million (2022 $11,945 million) of index-linked bonds.

The primary plan does not invest directly in either securities or property/real estate of the company or of any subsidiary.

The fair values of the various categories of assets held by the defined benefit plans at 31 December are presented in the table below, including the effects of derivative financial instruments. Movements in the fair value of plan assets during the year are shown in detail in the table on page 286.

			$ million
		2023	2022
Fair value of pension plan assets			
Listed equities	– developed markets	**862**	1,252
	– emerging markets	**28**	117
Private equity[a]		**2,022**	2,715
Government issued nominal bonds[b]		**6,285**	4,039
Government issued index-linked bonds[b]		**13,177**	11,945
Corporate bonds[b]		**6,144**	6,317
Property[c]		**2,437**	2,297
Cash		**453**	567
Other		**1,123**	1,088
Debt (repurchase agreements) used to fund liability driven investments		**(6,485)**	(5,290)
		26,046	25,047

[a] Private equity is valued at fair value based on the most recent third-party net asset, revenue or earnings based valuations that generally result in the use of significant unobservable inputs.
[b] Bonds held are denominated in sterling or hedged back to sterling to minimize foreign currency exposure, and are predominantly valued using observable market data based inputs other than quoted market prices in active markets.
[c] Property held is all located in the United Kingdom and is valued based on an analysis of recent market transactions supported by market knowledge derived from third-party professional valuers that generally result in the use of significant unobservable inputs.

		$ million
	2023	2022
Analysis of the amount charged to profit or loss		
Current service cost[a]	**44**	41
Past service cost[b]	**4**	23
Settlement	**–**	(8)
Operating charge / (credit) relating to defined benefit plans	**48**	56
Payments to defined contribution plan	**132**	110
Total operating charge / (credit)	**180**	166
Interest income on plan assets[c]	**(1,259)**	(694)
Interest on plan liabilities	**868**	529
Other finance (income)	**(391)**	(165)
Analysis of the amount recognized in other comprehensive income		
Actual asset return less interest income on pension plan assets	**(677)**	(12,955)
Change in financial assumptions underlying the present value of the plan liabilities	**(650)**	11,528
Change in demographic assumptions underlying the present value of plan liabilities	**(229)**	46
Experience gains and losses arising on the plan liabilities	**(321)**	(149)
Remeasurements recognized in other comprehensive income	**(1,877)**	(1,530)

[a] The costs of managing plan investments are offset against the investment return. Following the closure of the main UK pension plan to future accrual, current service cost consists of $34 million of the costs of administering the pension plan and $10 million of current service cost from the remaining small worldwide schemes administered and reported through the UK.
[b] Past service costs predominantly represent costs associated with the removal of some member benefits in non bp p.l.c pension plans being replaced with new arrangements and reported through bp p.l.c.
[c] The actual return on plan assets is made up of the sum of the interest income on plan assets and the remeasurement of plan assets as disclosed above.

4. Pensions – continued

		$ million
	2023	2022
Movements in benefit obligation during the year		
Benefit obligation at 1 January	**17,459**	32,800
Exchange adjustments	**1,055**	(3,220)
Operating charge relating to defined benefit plans	**48**	56
Interest cost	**868**	529
Contributions by plan participants	**6**	9
Benefit payments (funded plans)[a]	**(1,071)**	(1,211)
Benefit payments (unfunded plans)[a]	**(7)**	(5)
Disposals	**—**	(74)
Remeasurements	**1,200**	(11,425)
Benefit obligation at 31 December	**19,558**	17,459
Movements in fair value of plan assets during the year		
Fair value of plan assets at 1 January	**25,047**	42,844
Exchange adjustments	**1,462**	(4,258)
Interest income on plan assets[b]	**1,259**	694
Contributions by plan participants	**6**	9
Contributions by employers (funded plans)	**20**	10
Benefit payments (funded plans)[a]	**(1,071)**	(1,211)
Disposals	**—**	(86)
Remeasurements[b]	**(677)**	(12,955)
Fair value of plan assets at 31 December[c d]	**26,046**	25,047
Surplus at 31 December	**6,488**	7,588
Represented by		
Asset recognized	**6,631**	7,716
Liability recognized	**(143)**	(128)
	6,488	7,588
The surplus may be analysed between funded and unfunded plans as follows		
Funded	**6,631**	7,716
Unfunded	**(143)**	(128)
	6,488	7,588
The defined benefit obligation may be analysed between funded and unfunded plans as follows		
Funded	**(19,415)**	(17,331)
Unfunded	**(143)**	(128)
	(19,558)	(17,459)

[a] The benefit payments amount shown above comprises $1,044 million benefits (2022 $1,185 million) plus $34 million (2022 $31 million) of plan expenses incurred in the administration of the benefit.
[b] The actual return on plan assets is made up of the sum of the interest income on plan assets and the remeasurement of plan assets as disclosed above.
[c] Reflects $25,760 million of assets held in the BP Pension Fund (2022 $24,788 million) and $241 million held in the BP Global Pension Trust (2022 $202 million), as well as $35 million representing the company's share of Merchant Navy Officers Pension Fund (2022 $44 million) and $10 million of Merchant Navy Ratings Pension Fund (2022 $13 million).
[d] The fair value of plan assets includes borrowings related to the LDI programme as described on page 285.

Sensitivity analysis

The discount rate, inflation and the mortality assumptions all have a significant effect on the amounts reported. A one-percentage point change, in isolation, in certain assumptions as at 31 December 2023 for the company's plans would have had the effects shown in the table below. The effects shown for the expense in 2024 comprise the total of current service cost and net finance income or expense.

		$ million
	One percentage point	
	Increase	Decrease
Discount rate[a]		
Effect on pension expense in 2024	(197)	**173**
Effect on pension obligation at 31 December 2023	(2,258)	**2,809**
Inflation rate[b]		
Effect on pension expense in 2024	89	**(83)**
Effect on pension obligation at 31 December 2023	1,872	**(1,738)**

[a] The amounts presented reflect that the discount rate is used to determine the asset interest income as well as the interest cost on the obligation.
[b] The amounts presented reflect the total impact of an inflation rate change on the assumptions for rate of increase in pensions in payment and deferred pensions.

One additional year of longevity in the mortality assumptions would increase the 2024 pension expense by $27 million and the pension obligation at 31 December 2023 by $575 million.

4. Pensions – continued

Estimated future benefit payments and the weighted average duration of defined benefit obligations

The expected benefit payments, which reflect expected future service, as appropriate, but exclude plan expenses, and the weighted average duration of the defined benefit obligations at 31 December 2023 are as follows:

	$ million
Estimated future benefit payments	
2024	**1,168**
2025	**1,111**
2026	**1,124**
2027	**1,144**
2028	**1,157**
2029-2033	**5,950**
	Years
Weighted average duration	**12.9**

5. Payables

				$ million
	2023		2022	
	Current	**Non-current**	Current	Non-current
Amounts payable to subsidiaries	**10,750**	**53,439**	5,230	53,358
Accruals	**747**	**11**	498	8
Other payables	**210**	**133**	136	123
	11,707	**53,583**	5,864	53,489

Included in current amounts payable to subsidiaries are interest-bearing payables with BP Finance p.l.c. and BP Gamma Holdings Limited. Prior to 2023, the company's interest bearing payables with BP Finance p.l.c. and BP International Limited were exposed to 3 month USD LIBOR. Publication of 3 month USD LIBOR ceased from 30 June 2023 however a synthetic LIBOR continues to be published. The interest-bearing payable of $5,079 million (2022 $5,069 million) with BP Finance p.l.c. has interest charged based on a 3-month USD synthetic LIBOR rate minus 0.14% with a maturity date of April 2030. Though the loan with BP Finance p.l.c. is due in 2030, the loan is repayable at one business day's notice. It is disclosed as a non-current receivable in the financial statements of BP Finance p.l.c., given the counterparty has no intent to call the loan at short notice. The interest-bearing payable of $5,500 million (2022 Nil) with BP Gamma Holdings Limited has interest charged based on a SOFR plus 23 basis points with a maturity date of December 2024 and repayable at two business day's notice. Though the loan with BP Gamma Holdings Limited is due in 2024, the loan is auto-renewal. It is disclosed as a non-current receivable in the financial statements of BP Gamma Holdings Limited, given the counterparty has no intent to withdraw the loan within the next year.

Non-current amounts payable to subsidiaries includes an interest-bearing payable of $52,585 million with BP International Limited issued in December 2021 (2022 $52,585 million), with interest being charged based on a 3-month USD synthetic LIBOR rate plus 75 basis points and a maturity date of December 2028. The loan includes a prepayment clause for BP p.l.c. to repay part or all of the loan before maturity whilst the lender has no right to call the loan other than in the event of the company being in default. As such it is disclosed as non-current in both the company and BP International Limited's financial statements.

The maturity profile of the non-current financial liabilities included in the balance sheet at 31 December is shown in the table below. These amounts are included within payables.

		$ million
	2023	2022
Due within		
1 to 2 years	**129**	60
2 to 5 years	**52,747**	224
More than 5 years	**707**	53,205
	53,583	53,489

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

6. Taxation

Tax charge included in total comprehensive income	2023	2022
		$ million
Deferred tax		
Origination and reversal of temporary differences in the current year	**(387)**	(883)
This comprises:		
Taxable temporary differences relating to pensions	**(387)**	(883)
Deferred tax		
Deferred tax liability		
Pensions[a]	**2,305**	2,692
Net deferred tax liability	**2,305**	2,692
Analysis of movements during the year		
At 1 January	**2,692**	3,575
Charge (credit) for the year in the income statement	**126**	48
Charge (credit) for the year in other comprehensive income	**(513)**	(931)
At 31 December	**2,305**	2,692

[a] In November 2023 the UK Government announced a reduction in the authorised surplus payments charge applicable to defined benefit pension schemes from 35% to 25%. The legislation has not yet been enacted or substantively enacted, but is expected to be effective from 6 April 2024. The change is expected to reduce the deferred tax liability on pension plan surpluses by around $0.7 billion with the related gain recognised in other comprehensive income when the legislation is substantively enacted.

At 31 December 2023, deferred tax assets of $817 million on other temporary differences; $32 million relating to pensions, $159 million relating to income losses and $626 million relating to other deductible temporary differences (2022 $909 million on other temporary differences, comprising $8 million relating to pensions; $119 million relating to income losses and $782 million relating to other deductible temporary differences) were not recognised as it is not considered probable that suitable taxable profits will be available in the company from which the future reversal of the underlying temporary differences can be deducted. There is no fixed expiry date for the unrecognised temporary differences.

7. Called-up share capital

The allotted, called-up and fully paid share capital at 31 December was as follows:

	2023		2022	
Issued	Shares thousand	$ million	Shares thousand	$ million
8% cumulative first preference shares of £1 each[a]	**7,233**	**12**	7,233	12
9% cumulative second preference shares of £1 each[a]	**5,473**	**9**	5,473	9
		21		21
Ordinary shares of 25 cents each				
At 1 January	**19,097,783**	**4,774**	20,778,082	5,194
Issue of new shares for employee share-based payment plans	**66,000**	**17**	55,000	14
Issue of new shares - other[b]	**—**	**—**	165,105	41
Repurchase of ordinary share capital	**(1,262,983)**	**(316)**	(1,900,404)	(475)
At 31 December	**17,900,800**	**4,475**	19,097,783	4,774
		4,496		4,795

[a] The nominal amount of 8% cumulative first preference shares and 9% cumulative second preference shares that can be in issue at any time shall not exceed £10,000,000 for each class of preference shares.

[b] 165 million new ordinary shares were issued in April 2022 as non-cash consideration for the acquisition of the public units of BP Midstream Partners LP.

Voting on substantive resolutions tabled at a general meeting is on a poll. On a poll, shareholders present in person or by proxy have two votes for every £5 in nominal amount of the first and second preference shares held and one vote for every ordinary share held. On a show-of-hands vote on other resolutions (procedural matters) at a general meeting, shareholders present in person or by proxy have one vote each.

In the event of the winding up of the company, preference shareholders would be entitled to a sum equal to the capital paid up on the preference shares, plus an amount in respect of accrued and unpaid dividends and a premium equal to the higher of (i) 10% of the capital paid up on the preference shares and (ii) the excess of the average market price of such shares on the London Stock Exchange during the previous six months over par value.

During 2023 the company repurchased 1,263 million ordinary shares for a total consideration of $7,918 million, including transaction costs of $43 million. All shares purchased were for cancellation. The repurchased shares represented 7.1% of ordinary share capital. A further 156 million ordinary shares were repurchased between the end of the reporting period and 16 February 2024, the latest practicable date before the completion of these financial statements, for a total cost of $922 million of which $746 million has been accrued at 31 December 2023. The number of shares in issue is reduced when shares are repurchased.

7. Called-up share capital – continued

Treasury shares[a]

	2023		2022	
	Shares thousand	**Nominal value $ million**	Shares thousand	Nominal value $ million
At 1 January	**1,124,927**	**281**	1,137,457	283
Purchases for settlement of employee share plans	**24,688**	**6**	14,150	4
Issue of new shares for employee share-based payment plans	**71,039**	**19**	55,000	14
Shares re-issued for employee share-based payment plans	**(143,575)**	**(35)**	(81,680)	(20)
At 31 December	**1,077,079**	**271**	1,124,927	281
Of which - shares held in treasury by bp	**726,339**	**183**	940,571	235
- shares held in ESOP trusts	**350,704**	**88**	184,356	46
- shares held by bp's US plan administrator[b]	**36**	**—**	—	—

[a] See Note 8 for definition of treasury shares.
[b] Held by the company in the form of ADSs to meet the requirements of employee share-based payment plans in the US.

For each year presented, the balance of shares held in treasury by bp at 1 January represents 4.9% (2022 5.0%) of the called-up ordinary share capital of the company.

During 2023, the movement in shares held in treasury by bp represented less than 1.1% (2022 less than 0.5%) of the ordinary share capital of the company.

8. Capital and reserves

See statement of changes in equity for details of all reserves balances.

Share capital

The balance on the share capital account represents the aggregate nominal value of all ordinary and preference shares in issue, including treasury shares.

Share premium account

The balance on the share premium account represents the amounts received in excess of the nominal value of the ordinary and preference shares.

Capital redemption reserve

The balance on the capital redemption reserve represents the aggregate nominal value of all the ordinary shares repurchased and cancelled.

Merger reserve

The balance on the merger reserve represents the fair value of the consideration given in excess of the nominal value of the ordinary shares issued in an acquisition made by the issue of shares.

Treasury shares

Treasury shares represent bp shares repurchased and available for specific and limited purposes. For accounting purposes, shares held in Employee Share Ownership Plans (ESOPs) and by bp's US share plan administrator to meet the future requirements of the employee share-based payment plans are treated in the same manner as treasury shares and are, therefore, included in the financial statements as treasury shares. The ESOPs are funded by the company and have waived their rights to dividends in respect of such shares held for future awards. Until such time as the shares held by the ESOPs vest unconditionally to employees, the amount paid for those shares is shown as a reduction in shareholders' equity. Assets and liabilities of the ESOPs are recognized as assets and liabilities of the company.

Foreign currency translation reserve

The foreign currency translation reserve records exchange differences arising from the translation of the financial information of the foreign currency branch. Upon disposal of foreign operations, the related accumulated exchange differences are recycled to the income statement.

Profit and loss account

The balance held on this reserve is the accumulated retained profits of the company.

The profit and loss account reserve includes $23,858 million (2022 $23,610 million), the distribution of which is limited by statutory or other restrictions.

The financial statements for the year ended 31 December 2023 do not reflect the dividend announced on 6 February 2024 and which is expected to be paid on 28 March 2024; this will be treated as an appropriation of profit in the year ended 31 December 2024.

9. Financial guarantees and other contingencies

The company has issued guarantees to third parties and other bp subsidiaries in case of the failure, on the part of certain bp subsidiaries, to pay current liabilities and obligations pertaining to business operations. The amounts guaranteed by the company, at 31 December 2023, for these arrangements is $649 million (2022[a] $595 million). The company guarantees finance debt and lease obligations of certain bp group subsidiaries. Maturity dates vary and guarantees will terminate on full payment and/or cancellation of the obligation. As of 31 December 2023, maximum guaranteed amounts pertaining to debt and lease arrangements were $61,900 million (2022 $57,265 million). These maximum amounts are more than the actual guaranteed exposure due at the balance sheet date as well as more than remaining obligations under the guaranteed contracts.

Performance under all the above guarantees would be triggered by a financial default of the guaranteed entity and, as such, are currently not expected to have any material effect.

9. Financial guarantees and other contingencies – continued

As part of normal ongoing business operations and consistent with generally accepted industry practices, the company also executes contracts involving standard indemnities and guarantees for the respective businesses in which bp operates as well as indemnities specific to transactions, including the sale of businesses. This includes a guarantee of subsidiaries' liabilities under the Consent Decree between the United States, the Gulf states and bp and under the settlement agreement with the Gulf states in relation to the Gulf of Mexico oil spill. The company has also issued uncapped guarantees for certain subsidiaries' liabilities under the Plaintiffs' Steering Committee agreement relating to the Gulf of Mexico oil spill. See Note 33 in the consolidated group financial statements of BP p.l.c. for further information. The company regularly evaluates the probability of having to incur costs associated with these indemnities and does not believe such matters will have a material adverse effect on its results of operations and cash flow.

The company believes that guarantees and other off-balance sheet commitments do not currently, nor could reasonably have in the future, a material effect on its financial position, income and expenses, liquidity, investments or financial resources.

[a] An amendment has been made to prior year comparatives for the financial guarantee maximum exposure (previously reported as $107 million).

10. Auditor's remuneration

Note 36 to the consolidated financial statements provides details of the remuneration of the company's auditor on a group basis.

11. Directors' remuneration

		$ million
Remuneration of directors	2023	2022
Total for all directors		
Emoluments	8	8
Amounts awarded under incentive schemes[a]	6	13
Total	14	21

[a] Excludes amounts relating to past directors.

Emoluments

These amounts comprise fees paid to the non-executive chair and the non-executive directors and, for executive directors, salary and benefits earned during the relevant financial year, plus cash bonuses awarded for the year. Further information is provided in the Directors' remuneration report on page 105.

Directors' remuneration costs are borne by other undertakings within the group.

12. Employee costs and numbers

		$ million
Employee costs	2023	2022
Wages and salaries	1,211	924
Social security costs	192	131
	1,403	1,055

Average number of employees	2023	2022
gas & low carbon energy	430	329
oil production & operations	168	187
customers & products	1,571	1,182
other businesses and corporate	2,076	1,893
	4,245	3,591

The employee costs noted above relate to those employees with contracts of employment in the name of BP p.l.c.. These costs are borne by other undertakings within the group.

13. Events after the reporting period

On 14 February 2024 bp announced that it had agreed to form a new joint venture in Egypt with ADNOC (bp 51%, ADNOC 49%). As part of the agreement bp will contribute its interests in three non-operated development concessions as well as exploration agreements in Egypt, and ADNOC will make a proportionate cash contribution. Formation of the joint venture and completion of these transactions is subject to regulatory approval. From 14 February 2024 the associated carrying values of these interests have been determined to meet the criteria to be classified as assets held for sale under IFRS 5 Non-current Assets Held for Sale and Discontinued Operations. The carrying value of fixed assets associated with these interests at 31 December 2023 was $1.4 billion. The impacts are expected to be reflected in the group's first quarter 2024 interim financial statements.

14. Related undertakings of the group

In accordance with Section 409 of the Companies Act 2006, a full list of related undertakings, showing the registered office address and the effective equity owned by the bp group as at 31 December 2023 is disclosed below.

Unless otherwise stated, all interests are indirectly held by BP p.l.c.

All subsidiary undertakings are controlled by the group and their results are fully consolidated in the group's financial statements.

Subsidiaries

Company by country of incorporation and registered office address	Ownership interest	%
Albania		
Rruga Ibrahim Rugova, Sky Tower, Tirana, Kati 9/1, Albania		
BP Albania SHPK	Ordinary	100.00
Argentina		
Av. Cordoba 315 Piso 8, Buenos Aires, 1054, Argentina		
Latin Energy Argentina S.A.	Ordinary	100.00
Australia		
Level 11, 307 Queen Street, Brisbane, QLD, 4000, Australia		
Onyx Insight Australia Pty Ltd	Ordinary	100.00
Level 15, 240 St Georges Terrace, Perth, WA, 6000, Australia		
BP Developments Australia Pty. Ltd.	Ordinary	100.00
BP Developments Holdings Australia Pty Ltd	Ordinary	100.00
Level 17, 717 Bourke Street, Docklands VIC 3008, Australia		
Advance Petroleum Holdings Pty Ltd	Ordinary	100.00
Advance Petroleum Pty Ltd	Ordinary	100.00
Air Refuel Pty Ltd	Ordinary A; Ordinary B	100.00
Allgreen Pty Ltd	Ordinary	100.00
BASS Holdings Trust	Membership Interest	51.00
BASS Management Pty Ltd	Ordinary	51.00
BASS NZ Head Trust	Membership Interest	51.00
BASS NZ Management Pty Ltd	Ordinary	51.00
BASS NZ Sub Management Pty Ltd	Ordinary	51.00
BASS NZ Sub Trust	Membership Interest	51.00
BP Alternative Energy Australia Pty Ltd	Ordinary	100.00
BP Australia Employee Share Plan Proprietary Limited	Ordinary	100.00
BP Australia Group Pty Ltd	Ordinary; Preference	100.00
BP Australia Investments Pty Ltd	Ordinary	100.00
BP Australia Pty Ltd	Ordinary	100.00
BP Australia Shipping Pty Ltd[e]	Ordinary	100.00
BP Australia Supply Pty Ltd	Ordinary	100.00
BP Bulwer Island Pty Ltd	Ordinary; Ordinary A; Ordinary B	100.00
BP Energy Australia Pty Ltd	Ordinary	100.00
BP Finance Australia Pty Ltd	Ordinary	100.00
BP Low Carbon Australia (CCS) Pty Ltd	Ordinary	100.00
BP Low Carbon Australia Pty Ltd	Ordinary	100.00
BP Oil Australia Pty Ltd	Ordinary	100.00
BP Refinery (Kwinana) Proprietary Limited	Ordinary	100.00
BP Regional Australasia Holdings Pty Ltd	Ordinary	100.00
BP Solar Pty Ltd	Ordinary	100.00
Brian Jasper Nominees Pty Ltd	Ordinary	100.00
Burmah Castrol Australia Pty Ltd	Ordinary; Redeemable preference	100.00
Castrol Australia Pty. Limited	Ordinary	100.00
Castrol Holdings Australia Pty Ltd	Ordinary	100.00
Centrel Pty Ltd	Ordinary	100.00
Clarisse Holdings Pty Ltd	Ordinary	100.00
Dermody Petroleum Pty. Ltd	Ordinary	100.00
Elite Customer Solutions Pty Ltd	Ordinary	100.00
International Bunker Supplies Pty Ltd	Ordinary	100.00
No. 1 Riverside Quay Proprietary Limited	Ordinary	100.00
Open Energi Australia Pty Ltd	Ordinary; Ordinary A	100.00
Taradadis Pty. Ltd.	Ordinary	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

West Kimberley Fuels Pty Ltd	Ordinary	100.00
Austria		
Am Belvedere 10, 1100 Wien, Austria		
CASTROL Austria GmbH	Ordinary	100.00
Castrol Österreich Lubricants GmbH	Ordinary	100.00
Azerbaijan		
153 Neftchilar Avenue, Baku, AZ1010, Azerbaijan		
BP-AIOC Exploration (TISA) LLC	Membership Interest	65.88
TISA Education Complex LLC	Membership Interest	65.88
Bahamas		
2 Bayside Executive Park, West Bay, Nassau, Bahamas		
ARCO Trinidad Exploration and Production Company Limited	Ordinary	100.00
Barbados		
The Financial Services Centre, Bishop's Court Hill, St. Michael, Barbados		
BP (Barbados) Holding SRL	Ordinary	100.00
BP Train 2/3 Holding SRL	Ordinary	100.00
Belgium		
Langerbruggekaai 18, Gent, 9000, Belgium		
BP Iraq N.V.	Ordinary	100.00
Castrol Belgium B.V.	Ordinary	100.00
Brazil		
Avenida das Américas 3434, Bloco 7, Sala 301 a 308 (parte), Barra da Tijuca, Rio de Janeiro, 22640-102, Brazil		
BP Brasil Ltda.	Membership Interest	100.00
BP Energy do Brasil Ltda.	Ordinary	100.00
Castrol Brasil Ltda.	Ordinary	100.00
Avenida das Nações Unidas, nº 12.399, 4º andar, salas 43A e 44A , Torre C, Edifício Landmark, Brooklin Paulista, São Paulo/SP, CEP 04578-000, Brazil		
Air BP Brasil Ltda.	Ordinary	100.00
BP Biocombustíveis S.A.	Ordinary	100.00
Avenida das Nações Unidas, nº 12.399, salas 62,63 e 64, lado B, 6º andar, Edifício Landmark, São Paulo/SP, CEP 04578-000, Brazil		
BP Comercializadora de Energia Ltda.	Ordinary	100.00
British Virgin Islands		
Craigmuir Chambers, P.O. Box 71, Road Town, Tortola, British Virgin Islands		
BP Egypt East Delta Marine Corporation	Ordinary; Preference	100.00
BP Middle East Enterprises Corporation	Ordinary	100.00
Ocorian Corporate Services (BVI) Limited, Jayla Place, Wickhams Cay 1, PO Box 3190,Tortola, Road Town, VG1110, British Virgin Islands		
Wiriagar Overseas Ltd.	Ordinary	100.00
Canada		
1100, 635 - 8th Avenue SW, Calgary AB T2P 3M3, Canada		
Terre de Grace Partnership	Partnership interest	75.00
1700, 421 – 7th Avenue SW Calgary, AB T2P 4K9, Canada		
Finite Carbon Canada LTD	Ordinary	80.50
240 Fourth Avenue SW, Calgary AB T2P 2H8, Canada		
563916 Alberta Ltd.	Preference	33.33
Dome Beaufort Petroleum Limited	Ordinary	100.00
Dome Wallis (1980) Limited Partnership	Partnership interest	92.50
77 King Street West, Suite 400, Toronto, Canada		
TravelCentres Canada Corporation	Membership Interest	100.00
TravelCentres Canada Inc.	Membership Interest	100.00
TravelCentres Canada Limited Partnership	Limited Partner	100.00
900, 1959 Upper Water Street, Halifax, NS, B3J 3N2, Canada		
BP Canada Energy Development Company	Ordinary	100.00
BP Canada Energy Group ULC	Ordinary	100.00
Chile		
Av. Américo Vespucio Sur No. 100, of. 1101, Las Condes, Santiago, Chile		
Burmah Chile SpA	Ordinary	100.00

14. Related undertakings of the group – continued

China		
#4047, Room 313, Floor 3, Shanshui Tower, No. 3, Guloudong Avenue, Beijing, Miyun District, China		
Beijing BP Advanced Mobility Limited	Membership Interest	100.00
1-3 / F, Unit D2,1958 Double Innovation Park, No. 220, Huashan Road, Zhongyuan District, Zhengzhou City, China		
Zhenzhou BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
302,252, Duxin North Road, Fotang Town, Yiwu City, Zhejiang Province, China		
Jinhua BP Xiaoju New Energy Technology Co., Ltd.	Membership Interest	70.00
4-2-506, Rongchuang Rongsheng Plaza, Binhai-Zhongguancun Science and Technology Park, Tianjin Economic and Technological Development Zone, Tianjin, China		
Tianjin BP Advanced Mobility Limited	Membership Interest	100.00
808-02, Building 2, No.16, Xingao Road, Niutang Town, Wujin District, Changzhou City, Jiangsu Province, China		
Changzhou BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
C2256, Zhongchuang Space,9-14/F, Building A, Baoye Center, No.31 Jianshe 1st Road, Qingshan District, Wuhan City, Hubei Province, China		
Wuhan BP Xiaoju New Energy Technology Co., Ltd.	Membership Interest	70.00
D21 Room 306, No.64, Shiji Village Section, Shiji Town, Guangzhou, Panyu District, China		
Guangzhou BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
D69, Floor 3, Block 1, Phase 6,Tianan Nanhai Digital New Town, No.12, Jianping Road, Guicheng Street, Nanhai District, Foshan city, China		
Foshan BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Fenglin West Road, Dongpu Street,Yuecheng District, Shaoxing City, Zhejiang Province, China		
Shaoxing BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Floor 3, Building 5, 255 Guiqiao Road, Shanghai Pilot Free Trade Zone, China		
Castrol (Shanghai) Management Co., Ltd	Membership Interest	100.00
No 833, South Guang Zhou Avenue, Guangzhou Province, Haizhu District, China		
BP Guangdong Limited	Membership Interest	90.00
No. 06-03, 5th Floor, Building 1, Modern-International Design Phase 1,Guandong Street, No. 41, Guanggu Avenue, East Lake New Technology Development Zone, Wuhan (Wuhan Free Trade Zone), Hubei Province, China		
Wuhan BP Advanced Mobility Limited	Membership Interest	100.00
No. 1, Building 29, Tang'an Community, Haihong Street, Taizhou Bay New District, Taizhou City, Zhejiang Province, China		
Taizhou BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
No. 3-6-23, 1st Floor, Building 7, No. 130 Xiazhongdukou, Shapingba Street, Shapingba District, Chongqing, China		
Chongqing BP Advanced Mobility Limited	Membership Interest	100.00
No. 399 Dongfeng highway, Dongping Town, Chongming District, (Dongping Economic Development, Shanghai City, China		
Shanghai Quanzhi New Energy Co., Ltd.	Membership Interest	70.00
No.0152, Room 16, 17, 18, 7/F, Unit 3, Building 4, Greenland Liansheng International, East of Xingxin North Road and north of Yingbin Road, Jinhuayuan Street, Guanshanhu District, Guiyang City, Guizhou Province, China		
GuiYang City BP Xiaoju New Energy Technology Co. Ltd.	Membership Interest	70.00
No.17-5, Second Floor 04, Sumitomo Homeland, Binhu District, Wuxi City, China		
Wuxi BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
No.9 Bin Jiang South Road, Petrochemical Industrial Park, Taicang Gangkou Development Zone, Jiangsu Province, China		
BP (China) Industrial Lubricants Limited	Membership Interest	100.00
Office 6, Room 708, No. 33 Jinmeng Lane, Xiangzhou District, Zhuhai City, Guangdong Province, China		
Zhuhai BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 1001, 10th Floor, Building A2, Xiangjiang Times Business Square, No.179 Xiandao Road, Yuelu District,Hunan, Changsha, China		
BP (Hunan) Petroleum Company Limited	Membership Interest	100.00
Room 1001, 2nd Floor, Building 1,Qinqiao Agricultural Innovation Headquarters Building, Xiash, Shiyang Town, Taishun County, Wenzhou City, Zhejiang Province, China		
Wenzhou BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 102, No. 1, Shixin Road, Shiqiao Street, Panyu District, Guangzhou, China		
Guangzhou Jintian New Energy Technology Co., Ltd.	Membership Interest	100.00
Room 1107-2A258, Building 1, Aerospace City Center Square, Shenzhouwu Road, National Civil Aerospace Industry Base, Xi'an City, Shaanxi Province, China		
BP (Xi'an) Advanced Mobility Limited	Membership Interest	100.00
Room 1-2201, Sijian Meilin Mansion, No. 48-15 Wuyingshan Middle Road, Tianqiao District, Shandong, Ji'nan, China		
BP (Shandong) Petroleum Co., Ltd	Membership Interest	100.00
Room 1908, YOUYOU International Plaza, Pudong District, Shanghai, China		
BP (Shanghai) Technology Company Limited	Membership Interest	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

Room 201, 2nd floor, Building 3, Industrial Research and Development, Xingong Standard Factory Building, No. 31, Songbai Road, Santang Town, Xingning District, Nanning City, Guangxi Province, China		
Nanning BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 201, Complex A, Qianwan Road 1, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen City, China		
BP Xiaoju New Energy (Shenzhen) Co., Ltd.	Membership Interest	70.00
Room 2103, 10 Hua Xia Road, Tianhe District, Guangzhou, PR, China		
BP (Guangzhou) Advanced Mobility Limited	Ordinary	100.00
Room 215, Building 5, No. 72, Nanxiang 2nd Road, Sciecheng, Huangpu District, Guangzhou, China		
Guangzhou Jintian Linkage New Energy Technology Co., Ltd.	Membership Interest	100.00
Room 2-1-7, 1st Floor,Building 7, No.130 Xiazhong Dukou, Shapingba District, Chongqing, China		
Chongqing BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 222-1, Building 1, Wanya Famous City, Qiantang New District, Hangzhou City, Zhejiang Province, China		
Hangzhou BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 2233, second floor, Aofeng Street Resettlement House #1, No. 50 Aofeng Road, Aofeng Street, Fuzhou City, Taijiang District, China		
Fujian BP Xiaoju New Energy Technology Co., Ltd	Membership Interest	70.00
Room 2302, Unit 1, Building 20, Shengtang Supreme, Luolong District, Luoyang City, Henan Province, China		
Luoyang BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 2305, Floor 20, Building 29,Yard 8, West Cultural Park Road, Beijing Economic and Technological Development Zone, Beijing, China		
Beijing BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 2-521, Building A,No.6 Huafeng Road, Huaming Hi-tech Industrial Zone, Dongli District, Tianjin city, China		
Tianjin BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 302, No.252, Duxin North Road, Fotang Town, Yiwu City, Jinhua City, Zhejiang Province, China		
Jinhua BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 309, 3rd Floor, 2nd Floor, Southwest International Business Port, West Square, Taiyuan South Station, Taiyuan City, Xiandian District, China		
Taiyuan BP Xiaoju New Energy Technology Co., Ltd.	Membership Interest	70.00
Room 3173, Building 1,No.39 Hongtu Road, Nancheng Street, Dongguan City, Guangdong Province, China		
Dongguan BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 3726, Building 3, No. 89 Shuanggao Road, Gaochun Economic Development Zone, Nanjing, Gaochun District, China		
Nanjing BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 402, 4F, Block C, Complex Building, No.30 Jiefang Road, Lixia District, Jinan City, Shandong Province, China		
Jinan BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 402-12, No.90~96 Science Avenue (even), Huangpu District, Guangzhou, China		
Guangzhou Huangpu BP Xiaoju New Energy Technology Co., Ltd.	Membership Interest	70.00
Room 421, Floor 4,Building 8, No. 388, North Section of Yizhou Avenue, High-tech Zone, Chengdu city, China		
Chengdu BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 431, No. 30, East Qilong Road, Guangzhou, China		
Guangdong Jintian Technology Co., Ltd.	Membership Interest	100.00
Room 505, 5th Floor, Building 6,No. 599, Century City South Road, Chengdu High-tech Zone, China (Sichuan) Pilot Free Trade Zone, China		
Chengdu BP Advanced Mobility Limited	Membership Interest	100.00
Room 6, Ground floor, Building A, No.2 Taohong West Street, Shima Village, Junhe Street, Baiyun District, Guangzhou, China		
Guangdong Jintian New Energy Automobile Co., Ltd.	Membership Interest	100.00
Room 603, Floor 6, No. 3 Lane 2889 Jinke Road, (Shanghai) Pilot Free Trade Zone, China		
Onyx Insight Analytics Shanghai Limited	Membership Interest	100.00
Room 703, Building 32, No.258 Shengpu Road, Suzhou Industrial Park, China		
Suzhou BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 708-168, 7th Floor, Building C,Hangchuang Plaza, Shenzhou 4th Road, National Civil Aerospace Industry Base, Xi'an, Shaanxi, China		
Xi'an BP Xiaoju New Energy Technology Co., Ltd.	Membership Interest	70.00
Room 7088-594, 7th Floor, 1558 Jiangnan Road, Ningbo High-tech Zone, Zhejiang Province, China		
Ningbo BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 716, Block C, Future Science and Technology Plaza, No.136, Xiuzhou Avenue, Xincheng Street, Zhejiang Province, Jiaxing City, China		
Jiaxing BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Room 820, 8th Floor, Hilton Hotel, Platinum Bay World Trade Center, 1100, Section 3, Xiaoxiang North Road, Hunan Province, Changsha City, Yuelu District, China		
Changsha BP Advanced Mobility Limited	Membership Interest	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

Room -829, 1st Floor, D2 District, Fuxing City, No. 32 Binhai Avenue, Binhai Street, Longhua District, Haikou City, Hainan Province, China		
Hainan BP Xiaoju New Energy Co., Ltd	Membership Interest	70.00
Room A018, 10th Floor, Kaifeng Building, No. 188, Fuqiang Street, Yuhua District, Shijiazhuang City, Hebei Province, China		
Shijiazhuang City BP Xiaoju New Energy Technology Co. Ltd.	Membership Interest	70.00
South of NanGang Industrial Area, and East of Hai Gang Road, Tianjin Economic Development Area, Tianjin, China		
Castrol (Tianjin) Lubricants Co., Ltd	Membership Interest	100.00
Unit 01, 6th Floor (actual 5th), No.90 Qirong Road, China (Shanghai) Pilot Free Trade Zone, China		
BP (China) Holdings Limited	Membership Interest	100.00
Unit 03A, 33rd Floor, T1 Building, IFC, No.188, Jiefang West Road, Dingwangtai Street, Changsha City, Furong District, China		
Changsha BP Xiaoju New Energy Co., Ltd.	Membership Interest	70.00
Colombia		
Calle 80 No.11-42 Oficina 901, Bogota, 110111, Colombia		
GOAM 1 C.I S. A .S	Ordinary	100.00
Castrol Colombia Ltda.	Membership Interest	100.00
Croatia		
Savska cesta 32, Zagreb, Croatia		
Air BP Croatia d.o.o.	Ordinary	100.00
Denmark		
c/o Danish Refuelling Services I/S, Hydrantvej 16, 2770 Kastrup, Denmark		
BP Aviation A/S	Ordinary	100.00
Kampmannsgade 2, 1604 København V, Denmark		
Castrol Denmark A/S	Ordinary	100.00
Orestads Boulevard 73, Kobenhavn S, 2300, Denmark		
BP Danmark A/S	Ordinary	100.00
Egypt		
Plot No 14d03, The Southern Business district of Cairo, Festival City - New Cairo, Cairo, Egypt		
BP Marketing Egypt LLC	Ordinary	100.00
Castrol Egypt Lubricants S.A.E.	Ordinary	51.00
Castrol Egypt Marketing SSC	Ordinary	100.00
Finland		
Öljytie 4, 01530 Vantaa, Finland		
Air BP Finland Oy	Ordinary	100.00
France		
Campus Saint Christophe, Bâtiment Galilée 3, 10 Avenue de l'Entreprise, Cergy Cedex, 95863, France		
BP France	Ordinary	100.00
Castrol France Sas	Ordinary	100.00
PRODUITS METALLURGIE DOITTAU	Ordinary	100.00
Société de Gestion de Dépots d'Hydrocarbures - GDH	Ordinary	100.00
SRHP	Ordinary	100.00
Gambia		
3 Kairaba Avenue, 3rd Floor Centenary, Kanifing Municipality, Serekunda West, Gambia		
BP Exploration (Gambia) Limited	Ordinary	100.00
Germany		
Alexander-von-Humboldt-Straße 1, Gelsenkirchen, 45896, Germany		
Gelsenkirchen Raffinerie Netz GmbH	Ordinary	100.00
Ruhr Oel GmbH (ROG)	Ordinary	100.00
Raffineriestraße 1, Lingen, 49808, Germany		
Lingen Green Hydrogen GmbH & Co. KG	Ordinary	100.00
Lingen Green Hydrogen Management GmbH	Ordinary	100.00
Sportallee 6, 22335 Hamburg, Germany		
TGH Tankdienst-Gesellschaft Hamburg GbR	Partnership interest	66.67
Timmerhellstsr. 28, Mülheim/Ruhr, 45478, Germany		
DHC Solvent Chemie GmbH	Ordinary	100.00
Überseeallee 1, 20457, Hamburg, Germany		
BP Europa SE[b]	Ordinary	100.00
BP Lingen Green Hydrogen Verwaltung GmbH	Ordinary	100.00
BP Olex Fanal Mineralöl GmbH	Ordinary	100.00
Castrol Deutschland Verwaltungsgesellschaft mbH	Ordinary	100.00

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14. Related undertakings of the group – continued

Castrol Germany GmbH	Ordinary	100.00
Wittener Straße 45, 44789 Bochum, Germany		
Aral Aktiengesellschaft	Ordinary	100.00
Aral Pulse GmbH	Ordinary	100.00
B2Mobility GmbH	Ordinary	100.00
BP Fuels Deutschland GmbH	Ordinary	100.00
bp OFW Management 1 GmbH	Ordinary	100.00
bp OFW Management 2 GmbH	Ordinary	100.00
bp OFW Management 3 GmbH	Ordinary	100.00
bp OFW Management 4 GmbH	Ordinary	100.00
Trafineo Service GmbH	Ordinary	75.00
Wittener Straße 56, Bochum, Germany		
TRaBP GbR	Partnership interest	75.00
Trafineo GmbH & Co. KG	Partnership interest	75.00
Trafineo Verwaltungs-GmbH	Ordinary	75.00
Zum Ölhafen 207, 26384 Wilhelmshaven, Germany		
Nord-West Oelleitung GmbH	Ordinary	59.33
Ghana		
Atlantic Tower, 4th Floor, Liberation Road, Airport City, Accra, Ghana		
BP Ghana Ltd	Ordinary	100.00
Greece		
1, Proteos & 51, Anapafseos str, 15235 Vrilissia, Attica, Greece		
RAPI SA	Ordinary	62.51
26A, Ioannou Apostolopoulou, 15231, Chalandri, Attica, Greece		
BP OIL HELLENIC S.M.S.A.	Ordinary	100.00
Castrol Hellas Single Member Societe Anonyme	Ordinary	100.00
Guernsey		
Albert House, South Esplanade, St. Peter Port, GY1 1AW, Guernsey		
BP Pensions (Overseas) Limited[c]	Membership Interest	100.00
Jupiter Insurance Limited	Ordinary	100.00
Hong Kong		
Unit 25-150, 25/F, Two Harbour Square, 180 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong		
Castrol (China) Limited	Ordinary	100.00
Hungary		
1133 Budapest, Árbóc utca 1-3, Hungary		
BP Business Service Centre KFT	Membership Interest	100.00
Iceland		
Skogarhlid 12, 105, Reykjavik, Iceland		
Air BP Iceland	Ordinary	100.00
India		
2nd,3rd & 4th Floor, 201,301,401, Bldg. No. 6, R4, KRC Infrastructure & Projects Pvt. Ltd. SEZ, Kharadi, Pune 411014, India		
BP Business Solutions India Private Limited	Ordinary	100.00
Office No. 306, Regus Business Center , 3rd Floor, Abbusali St, Saligramam, Chennai, Tamil Nadu, 600093, India		
OnSight Analytics Solutions India Private Ltd.	Ordinary	100.00
Technopolis Knowledge Park, Mahakali Caves Road, Andheri (East), Mumbai 400093, India		
BP India Private Limited	Ordinary	88.51
Castrol India Limited	Ordinary	51.00
Indonesia		
Arkadia Green Park, Tower G, 2nd Floor, Jl. Letjend TB Simatupang Kav. 88, Jakarta Selatan, Pasar Minggu, 12520, Indonesia		
PT Jasatama Petroindo	Ordinary A; Ordinary B	100.00
Arkadia Green Park, Tower G, 3rd floor, Jl. Let. Jen. TB Simatupang Kav. 88, Jakarta Selatan, Jakarta 12520, Indonesia		
PT Castrol Indonesia	Ordinary	68.30
JL. Raya Merak KM 117,DS Gerem, Gerem Grogol, Banten, Cilegon, Indonesia		
PT Castrol Manufacturing Indonesia	Ordinary	68.30
Iraq		
Khur Al-Zubair, pear No 1, Basra, Iraq		
Water Way Trading and Petroleum Services LLC	Ordinary	100.00
Royal Tulip Al Rasheed Hotel, Baghdad Tower, PO Box 8070, Baghdad, Iraq		
Phoenix Petroleum Services, Limited Liability Company	Ordinary	100.00

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14. Related undertakings of the group – continued

Ireland		
One Spencer Dock, North Wall Quay, Dublin 1, Ireland		
Castrol (Ireland) Limited	Ordinary	100.00
Italy		
Piazza Borromeo, 12, Milano, 20123, Italy		
BP Italia Holdings SpA	Ordinary	100.00
Via Gaetano De Castillia, 23, Milan, MI, 20124, Italy		
BP Italia SpA	Ordinary	100.00
Japan		
15th Fl. Roppongi Hills Mori Tower, 10-1 Roppongi 6-chome, Minato-ku, Tokyo106-6115, Japan		
BP Japan K.K.	Ordinary	100.00
TJKK	Ordinary	100.00
East Tower 20F, Gate City Ohsaki, 1-11-2 Osaki, Shinagawa-ku, Tokyo, Japan		
BP Castrol KK	Ordinary	64.84
BP Lubricants KK	Ordinary	64.84
Castrol KK	Ordinary	64.84
Korea (the Republic of)		
1304(Ocean Hill Officetel), 73 gangnam-haeanro, Dolsan-eup, Yeosu-si, Jeollanam Province, Korea (the Republic of)		
West Ocean Wind Co., Ltd.	Ordinary	55.00
19th Floor, 302, Teheran-ro, Gangnam-gu, Seoul, Korea (the Republic of)		
BP Korea Limited	Ordinary	100.00
3rd Floor, 10, Baumoe-ro 21-gil, Seocho-gu, Seoul, Korea (the Republic of)		
Onyx Insight Korea Co., Ltd.	Ordinary	100.00
Level 2 (787-87, Gunnae-ri), 18 Chunghaejinnam-ro, Wando-eup, Wando County, Jeollanam Province, Korea (the Republic of)		
Chunghaejin Offshore Wind Power Co., Ltd.	Ordinary	55.00
Level 2 (LS Tower), 7 Samyul 6-gil, Hupo-myeon, Uljin County, Gyeongsangbuk Province, Korea (the Republic of)		
Ilchool Offshore Wind Power Co., Ltd.	Ordinary	55.00
Level 3, 702-ho, 61-18 Odongdo-ro, Yeosu-si, Jeollanam Province, Korea (the Republic of)		
YiSunSin Offshore Wind Co., Ltd.	Ordinary	55.00
Luxembourg		
Bâtiment B, 36 route de Longwy, L-8080 Bertrange, Luxembourg		
Aral Luxembourg S.A.	Ordinary	100.00
Aral Tankstellen Services Sarl	Ordinary	100.00
Malaysia		
Level 9, Tower 5, Avenue 7, The Horizon Bangsar South City, No. 8, Jalan Kerinchi, Kuala Lumpur, 59200, Malaysia		
Aspac Lubricants (Malaysia) Sdn. Bhd.	Membership Interest	63.03
BP Business Service Centre Asia Sdn Bhd	Ordinary	100.00
BP Castrol Lubricants (Malaysia) Sdn. Bhd.	Ordinary	63.03
BP Malaysia Holdings Sdn. Bhd.	Ordinary	70.00
Mexico		
Avenida Santa Fe 505, Col. Cruz Manca Santa Fe, Delegacion Cuajimalpa, Mexico		
BP Energía México, S. de R.L. de C.V.	Ordinary; Ordinary B	100.00
BP Estaciones y Servicios Energéticos, Sociedad Anónima de Capital Variable	Ordinary A; Ordinary B	100.00
BP Exploration Mexico, S.A. De C.V.	Ordinary A; Ordinary B	100.00
BP Servicios de Combustibles S.A. de C.V.	Ordinary	100.00
BP Servicios territoriales, S.A. de C.V.	Ordinary	100.00
Castrol Mexico, S.A. de C.V.	Ordinary A; Ordinary B	100.00
Mes Tecnologia En Servicios Y Energia, S.A. De C.V.	Ordinary A; Ordinary B	100.00
Mozambique		
Torres Rani, Avenida Marginal, Talhão 141, 6º andar, Maputo, Mozambique		
BP Mocambique Limitada	Ordinary	100.00
Netherlands		
Chertsey Road, Sunbury on Thames, Middlesex, TW16 7BP, England, United Kingdom		
BP Capital Markets B.V.	Ordinary	100.00
d'Arcyweg 76, 3198 NA Europoort Rotterdam, Netherlands		
Actomat B.V.	Ordinary	100.00
Amoco Canada International Holdings B.V.	Ordinary	100.00
Amoco Chemicals (FSC) B.V.	Ordinary	100.00
Amoco Exploration Holdings B.V.	Ordinary	100.00

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14. Related undertakings of the group – continued

Amoco Trinidad Gas B.V.	Ordinary	100.00
BP Canada International Holdings B.V.	Ordinary	100.00
BP Commodity Supply B.V.	Ordinary	100.00
BP Egypt East Tanka B.V.	Ordinary	100.00
BP Egypt Production B.V.	Ordinary	100.00
BP Egypt Ras El Barr B.V.	Ordinary	100.00
BP Egypt West Mediterranean (Block B) B.V.	Ordinary	100.00
BP Holdings B.V.	Ordinary	100.00
BP Holdings International B.V.	Ordinary	100.00
BP Management International B.V.	Ordinary	100.00
BP Management Netherlands B.V.	Ordinary	100.00
BP Muturi Holdings B.V.	Ordinary	100.00
BP Nederland Holdings B.V.	Ordinary	100.00
BP Netherlands Upstream B.V.	Ordinary	100.00
BP Offshore Renewables Energy B.V.	Ordinary	100.00
BP Raffinaderij Rotterdam B.V.	Ordinary	100.00
BPNE International B.V.	Ordinary	100.00
Castrol B.V.	Ordinary	100.00
Castrol Holdings Europe B.V.	Ordinary	100.00
Castrol Nederland B.V.	Ordinary	100.00
Foseco Holding International B.V.	Ordinary	100.00
FreeBees B.V.	Ordinary	100.00
Vaals B.V.	Ordinary	100.00
Vaals HoldCo B.V.	Ordinary	100.00
Überseeallee 1, 20457, Hamburg, Germany		
BP Holdings Central Europe B.V.	Ordinary	100.00
New Zealand		
Ground Floor, Watercare House, 73 Remuera Road, Remuera, Auckland, 1050, New Zealand		
BP New Zealand Holdings Limited	Ordinary	100.00
BP New Zealand Share Scheme Limited	Ordinary	100.00
BP Oil New Zealand Limited	Ordinary	100.00
BP Pacific Investments Ltd	Ordinary	100.00
Castrol New Zealand Limited	Ordinary	100.00
Coro Trading NZ Limited	Ordinary	100.00
Europa Oil NZ Limited	Ordinary	100.00
Nigeria		
1, Oyinka Abayomi Drive, Ikoyi, Lagos, Nigeria		
BP Exploration (Nigeria) Limited	Ordinary	100.00
188, Awolowo Road, S. W. Ikoyi, Lagos, Nigeria		
Amoco Nigeria Exploration Company Limited	Ordinary; Preference	100.00
Amoco Nigeria Oil Company Limited	Membership Interest	100.00
Amoco Nigeria Petroleum Company Limited	Membership Interest	100.00
8/10, Broad Street, Lagos, Nigeria		
ARCO Oil Company Nigeria Unlimited	Membership Interest	100.00
Heritage Place, 13th Floor, 21 Lugard Avenue,Lagos, Ikoyi, Nigeria		
BP Global West Africa Limited	Ordinary	100.00
Norway		
Tjuvholmen allé 3, 0252 Oslo, Norway		
Air BP Norway AS	Ordinary	100.00
BP Fuels & Lubricants AS	Ordinary	100.00
BP Low Carbon Energy Norway Holding AS	Ordinary	100.00
BP Norway Offshore Wind SN2 Holdco AS	Ordinary	100.00
Oman		
PO Box 2309, Salalah, 211, Oman		
BP Global Investments Salalah & Co LLC	Membership Interest	100.00
Rock Garden Plaza – Phase 1 Building, PO Box 545, PC 118, Oman		
BP Duqm Hydrogen SPC	Ordinary	100.00

14. Related undertakings of the group – continued

Pakistan		
D-67/1, Block # 4, Scheme # 5, Clifton, Karachi, Pakistan		
Castrol Pakistan (Private) Limited	Ordinary	100.00
Peru		
Av. Camino Real, 111 Torre B Oficina, 603 San Isidro, Lima, Peru		
Castrol Del Peru S.A.	Ordinary	100.00
Philippines		
37th Floor, LKG Tower 6801, Ayala Avenue, Makati City, Philippines		
Castrol Philippines, Inc.	Ordinary	100.00
Poland		
ul. Grzybowska 62, Warszawa, 00-844, Poland		
Castrol CEE spółka z ograniczoną odpowiedzialnością	Ordinary	100.00
ul. Pawia 9, Małopolskie, Kraków, 31-154, Poland		
BP Polska Services Sp. z o.o.	Membership Interest	100.00
Portugal		
Lagoas Park, Edificio 3, Porto Salvo, Oeiras, Portugal		
BP Portugal -Comercio de Combustiveis e Lubrificantes SA	Ordinary	100.00
Castrol Portugal, S.A.	Ordinary	100.00
Fuelplane- Sociedade Abastecedora De Aeronaves, Unipessoal, Lda	Ordinary	100.00
Sociedade de Promocao Imobiliaria Quinta do Loureiro, SA	Ordinary	100.00
Romania		
Bucharest, District 3, Boulevard Comeliu Coposu, no 6-8, Unirii View Building, Office 101, floor 1, Romania		
Castrol Lubricants RO S.R.L	Ordinary	100.00
Otopeni, 224E Calea Bucurestilor, within International Airport - Băneasa, Aurel Vlaicu - platform 2,Ilfov county, Romania		
Air BP Sales Romania S.R.L.	Ordinary	100.00
Russian Federation		
Berzarina str., 36, building1, Shchukino Municipal District, Moscow, 123060, Russian Federation		
Limited liability company Setra Lubricants	Membership Interest	100.00
Senegal		
Route de Ouakam x Corniche Ouest, Immeuble Alphadio Barry, Dakar, Senegal		
BP Oil Senegal S.A.	Ordinary	100.00
Singapore		
7 Straits View #26-01, Marina One East Tower, 018936, Singapore		
BP Asia Pacific Pte Ltd[d]	Ordinary	100.00
BP Energy Asia Pte. Limited	Ordinary	100.00
BP Exploration (Xazar) Pte. Ltd.	Ordinary	100.00
BP Maritime Services (Singapore) Pte. Limited	Ordinary	100.00
BP Singapore Pte. Limited	Ordinary	100.00
Castrol Singapore PTE. Limited	Ordinary	100.00
Slovakia		
Karadžičova 2, Bratislava, 815 32, Slovakia		
Blueprint Power Slovakia s.r.o.	Membership Interest	100.00
South Africa		
199 Oxford Road, Oxford Parks, Dunkeld, Johannesburg, GP, 2196, South Africa		
BP Southern Africa Proprietary Limited	Ordinary	74.97
Burmah Castrol South Africa (Pty) Limited	Ordinary; Ordinary A	100.00
ECM Markets SA (Pty) Ltd	Ordinary	74.97
Spain		
Atraque Punta Lucero, Explanada Punta Ceballos s/n, Ziérbena (Vizcaya), Spain		
Bahia de Bizkaia Electridad, S.L.	Ordinary	75.00
Calle Quintanadueñas, 6, (Edificio Arqborea), Madrid, 28050, Spain		
BP Energy Solutions Sociedad de Valores, S.A	Ordinary	100.00
BP Espana, S.A. Unipersonal	Ordinary A; Ordinary B; Ordinary C	100.00
BP Gas & Power Iberia, S.A	Ordinary	100.00
BP Refined Products Trading Iberia, S.L.	Ordinary	100.00
BP Solar Espana, S.A. Unipersonal	Ordinary A; Ordinary B	100.00
Castrol España, S.L. Sociedad Unipersonal	Ordinary	100.00
Markoil, S.A. Unipersonal	Ordinary	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

Onyx Insight Spain Sociedad Limitada	Ordinary	100.00
Polígono Industrial "El Serrallo", s/n 12100 Grao de Castellón, Castellón de la Plana, Spain		
BP Energía España, S.A. Unipersonal	Ordinary	100.00
Castellón Green Hydrogen, S.L.	Ordinary	100.00
Sweden		
Box 8107, Stockholm, 10420, Sweden		
Air BP Sweden AB	Ordinary	100.00
Hemvärnsgatan, 171 54, Solna, Sweden		
Castrol Sweden AB	Ordinary	100.00
Switzerland		
Baarerschtrasse 139, Zug, 6300, Switzerland		
Castrol Switzerland GmbH	Ordinary	100.00
Taiwan (Province of China)		
57F.-1, No. 7, Sec. 5, Xinyi Rd., Xinyi Dist., Taipei City, 11049, Taiwan (Province of China)		
BP Taiwan Marketing Limited	Ordinary	100.00
Thailand		
23rd Fl. Rajanakarn Bldg, 3 South Sathon Road, Yannawa South Sathon, Bangkok 10120, Thailand		
BP - Castrol (Thailand) Limited	Ordinary	57.59
SOFAST Limited	Ordinary (100.00%); Preference (58.99%)	63.09
39/77-78 Moo 2 Rama II Road, Tambon Bangkrachao, Amphur Muang, Samutsakorn 74000, Thailand		
BP Holdings (Thailand) Limited	Ordinary (80.10%); Preference (99.07%)	81.18
BP Oil (Thailand) Limited	Ordinary (93.64%); Preference (81.18%)	90.40
Trinidad and Tobago		
5-5A Queen's Park West, Port-of-Spain, Trinidad and Tobago		
BP Alternative Energy Trinidad and Tobago Limited	Ordinary	100.00
BP Trinidad & Tobago LNG Holdings Limited	Ordinary	100.00
BP Trinidad Processing Limited	Ordinary	100.00
Mayaro Initiative for Private Enterprise Development	Ordinary	70.00
Türkiye		
Degirmen yolu cad. No:28, Asia OfisPark K:3 Icerenkoy-Atasehir, Istanbul, 34752, Türkiye		
BP Akaryakit Ortakligi	Partnership interest	70.00
BP Dogal Gaz Ticaret Anonim Sirketi	Ordinary	100.00
BP Petrolleri Anonim Sirketi	Ordinary	100.00
Içerenköy Mah, Degirmen Yolu Cad, Mengerler Blok No: 28/1 Iç Kapi No: 12, Atasehir/Istanbul, Türkiye		
Castrol Madeni Yağlar Ticaret Anonim Şirketi	Ordinary	100.00
United Arab Emirates		
2474ResCo-work07 & 2474ResCo-work08, 24, Al Sila Tower, Abu Dhabi Global Market Square, Al Maryah Island, Abu Dhabi, United Arab Emirates		
LYTT ME LIMITED	Ordinary	100.00
8th Floor, Standard Chartered Tower, Downtown, Dubai, United Arab Emirates		
BP Middle East LLC	Ordinary	100.00
Jebel Ali Free Zone, Dubai, United Arab Emirates		
Stryde Middle East FZE	Ordinary	100.00
United Kingdom		
1 Wellheads Avenue, Dyce, Aberdeen, AB21 7PB, United Kingdom		
BP Energy Europe Limited	Ordinary	100.00
BP Exploration Company Limited	Ordinary	100.00
Britannic Strategies Limited	Ordinary	100.00
Britoil Limited	Ordinary	100.00
Burmah Castrol PLC[d]	Ordinary	100.00
10 Upper Berkeley Street, London, W1H 7PE, United Kingdom		
Horizon 38 Management Company Limited	Membership interest	53.50
11 Black Horse Lane, Ipswich, Suffolk, IP1 2EF, United Kingdom		
Manormaker (Nominee No. 1) Limited	Ordinary	99.90
Manormaker (Nominee No. 2) Limited	Ordinary	99.90
Manormaker GP Limited	Membership interest	99.90
The Manormaker Limited Partnership	Membership interest	99.90

14. Related undertakings of the group – continued

33 Cavendish Square, London, W1G 0PW, United Kingdom		
Ropemaker Exempt Unit Trust	Membership interest	100.00
Breckland, Linford Wood, Milton Keynes, MK14 6GY, England, United Kingdom		
Ashford Truckstop Freehold Limited	Ordinary	100.00
Charge Your Car Limited	Ordinary A; Ordinary B	100.00
Chargemaster Limited	Ordinary	100.00
Elektromotive Limited	Ordinary	100.00
C/O Bdo Llp, 2 Atlantic Square, 31 York Street, Glasgow, G2 8NJ, Scotland, United Kingdom		
The Burmah Oil Company (Pakistan Trading) Limited	Ordinary	100.00
C/O Bdo Llp, 5 Temple Square, Temple Street, Liverpool, L2 5RH, United Kingdom		
Autino Holdings Limited	Ordinary	100.00
BP (Indian Agencies) Limited[d]	Ordinary	100.00
BP Exploration (Canada) Limited	Ordinary	100.00
BP Exploration (Greenland) Limited	Ordinary	100.00
BP Exploration (Madagascar) Limited	Ordinary	100.00
BP Exploration (Morocco) Limited	Ordinary	100.00
BP Exploration (Namibia) Limited	Ordinary	100.00
BP Exploration (Psi) Limited	Ordinary	100.00
BP Exploration Peru Limited	Ordinary	100.00
BP Oil Venezuela Limited	Ordinary	100.00
BP Petrochemicals India Investments Limited	Ordinary	100.00
BP Subsea Well Response (Brazil) Limited	Ordinary	100.00
Expandite Contract Services Limited	Ordinary	100.00
Exploration (Luderitz Basin) Limited	Ordinary	100.00
Chertsey Road, Sunbury on Thames, Middlesex, TW16 7BP, England, United Kingdom		
Air BP Limited	Ordinary	100.00
Amoco (Fiddich) Limited	Ordinary	100.00
Amoco U.K. Petroleum Limited	Ordinary	100.00
Atlantic 2/3 UK Holdings Limited	Ordinary	100.00
Autino Limited	Ordinary	100.00
BP (Abu Dhabi) Limited	Ordinary	100.00
BP (Barbican) Limited[d]	Ordinary	100.00
BP (Gibraltar) Limited	Ordinary	100.00
BP (GTA Mauritania) Finance Limited	Ordinary	100.00
BP (GTA Senegal) Finance Limited	Ordinary	100.00
BP Absheron Limited	Ordinary	100.00
BP Advanced Mobility Limited	Ordinary	100.00
BP Africa Limited[d]	Ordinary	100.00
BP Africa Oil Limited	Ordinary	100.00
BP Agung I Limited	Ordinary	100.00
BP Agung II Limited	Ordinary	100.00
BP Alternative Energy Investments Limited	Ordinary	100.00
BP America Limited	Ordinary	100.00
BP Amoco Exploration (Faroes) Limited	Membership interest	100.00
BP Andaman II Ltd	Ordinary	100.00
BP Asia Pacific Holdings Limited	Ordinary	100.00
BP Australia Swaps Management Limited	Ordinary	100.00
BP Benevolent Fund Trustees Limited[d]	Ordinary	100.00
BP Biofuels Brazil Investments Limited	Ordinary	100.00
BP Capital Markets p.l.c.	Ordinary	100.00
BP Car Fleet Limited[d]	Ordinary	100.00
BP Carbon Trading Limited	Ordinary	100.00
BP CCUS UK LTD	Ordinary	100.00
BP CCUS UK NEP Limited	Ordinary	100.00
BP Chemicals Limited	Ordinary	100.00
BP Continental Holdings Limited	Ordinary	100.00
BP Corporate Holdings Limited	Ordinary	100.00
BP D230 Limited	Ordinary	100.00
BP East Kalimantan CBM Limited	Ordinary	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

BP Eastern Mediterranean Limited	Ordinary	100.00
BP Energy Colombia Limited	Ordinary	100.00
BP Eta Holdings Limited	Ordinary	100.00
BP Exploration (Absheron) Limited	Ordinary	100.00
BP Exploration (Alpha) Limited	Ordinary	100.00
BP Exploration (Azerbaijan) Limited	Ordinary	100.00
BP Exploration (Caspian Sea) Limited	Ordinary	100.00
BP Exploration (D230) Limited	Ordinary	100.00
BP Exploration (Delta) Limited	Ordinary	100.00
BP Exploration (Epsilon) Limited	Ordinary	100.00
BP Exploration (Shafag-Asiman) Limited	Ordinary	100.00
BP Exploration (Shah Deniz) Limited	Ordinary	100.00
BP Exploration (South Atlantic) Limited	Ordinary	100.00
BP Exploration (STP) Limited	Ordinary	100.00
BP Exploration Argentina Limited	Ordinary	100.00
BP Exploration Beta Limited	Ordinary	100.00
BP Exploration China Limited	Ordinary	100.00
BP Exploration Company (Middle East) Limited	Ordinary	100.00
BP Exploration Indonesia Limited	Ordinary	100.00
BP Exploration Libya Limited	Ordinary	100.00
BP Exploration Mediterranean Limited	Ordinary	100.00
BP Exploration North Africa Limited	Ordinary	100.00
BP Exploration Operating Company Limited	Ordinary	100.00
BP Exploration Orinoco Limited	Ordinary	100.00
BP Exploration Personnel Company Limited	Ordinary	100.00
BP Express Shopping Limited	Ordinary	100.00
BP Finance p.l.c.	Ordinary	100.00
BP Gamma Holdings Limited[d]	Ordinary	100.00
BP Gas & Power Investments Limited	Ordinary	100.00
BP Gas Marketing Limited	Ordinary	100.00
BP Global Investments Limited[d]	Ordinary	100.00
BP Global Solutions Limited	Ordinary	100.00
BP Greece Limited	Ordinary	100.00
BP Holdings Canada Limited[d]	Ordinary	100.00
BP Holdings Iraq Ltd	Ordinary	100.00
BP Holdings North America Limited[d]	Ordinary, Cumulative redeemable preference	100.00
BP Hydrogen and CCS Development Company Limited	Ordinary	100.00
BP Indonesia Investment Limited	Ordinary	100.00
BP Integrated Solutions Limited	Ordinary	100.00
BP International Limited[d]	Ordinary	100.00
BP Investment Management Limited	Ordinary	100.00
BP Investments Asia Limited	Ordinary	100.00
BP Iota Holdings Limited	Ordinary	100.00
BP Iran Limited	Ordinary	100.00
BP Kappa Holdings Limited	Ordinary	100.00
BP Kuwait Limited	Ordinary	100.00
BP Lambda Holdings Limited	Ordinary	100.00
BP Low Carbon Development Company Limited	Ordinary	100.00
BP Marine Limited	Ordinary	100.00
BP Mauritania Investments Limited	Ordinary	100.00
BP Middle East Limited[d]	Ordinary	100.00
BP Mocambique Limited	Ordinary	100.00
BP New Ventures Middle East Limited	Ordinary	100.00
BP North East Offshore Wind Limited	Ordinary	100.00
BP NZT Power Holdings Limited	Ordinary	100.00
BP Oil International Limited	Ordinary	100.00
BP Oil Kent Refinery Limited	Ordinary	100.00
BP Oil Llandarcy Refinery Limited	Ordinary	100.00

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14. Related undertakings of the group – continued

BP Oil Logistics UK Limited	Ordinary	100.00
BP Oil UK Limited	Ordinary; Debentures	100.00
BP Oil Vietnam Limited	Ordinary	100.00
BP Oil Yemen Limited	Ordinary	100.00
BP Pension Escrow Limited	Ordinary	100.00
BP Pension Trustees Limited[d]	Ordinary	100.00
BP Pensions Limited[d]	Ordinary	100.00
BP Pipelines (BTC) Limited	Ordinary	100.00
BP Pipelines (SCP) Limited	Ordinary	100.00
BP Pipelines (TANAP) Limited	Ordinary	100.00
BP Pipelines TAP Limited	Ordinary	100.00
BP Poseidon Limited	Ordinary	100.00
BP Properties Limited[d]	Ordinary	100.00
BP Retail Properties Limited	Ordinary	100.00
BP Russian Investments Limited	Ordinary	100.00
BP Russian Ventures Limited	Ordinary	100.00
BP Scale Up Factory Limited	Ordinary	100.00
BP Senegal Investments Limited	Ordinary	100.00
BP Services International Limited	Ordinary	100.00
BP Shafag-Asiman Limited	Ordinary	100.00
BP Shipping Limited	Ordinary	100.00
BP South America Holdings Ltd	Ordinary	100.00
BP Subsea Well Response Limited	Ordinary	100.00
BP Technology Ventures Limited	Ordinary	100.00
BP Theta Holdings Limited	Ordinary	100.00
BP Turkey Refining Limited[d]	Ordinary	100.00
BP UK Fatima Limited	Ordinary	100.00
BP UK Retained Holdings Limited	Ordinary	100.00
BP West Aru I Limited	Ordinary	100.00
BP West Aru II Limited	Ordinary	100.00
BP West Papua I Limited	Ordinary	100.00
BP Zeta Holdings Limited	Ordinary	100.00
BP+Amoco International Limited	Ordinary	100.00
Britannic Energy Trading Limited	Ordinary	100.00
Britannic Investments Iraq Limited	Ordinary	100.00
Britannic Marketing Limited	Ordinary	100.00
Britannic Trading Limited	Ordinary	100.00
BTC Pipeline Holding Company Limited	Ordinary	100.00
BXL Plastics Limited	Ordinary; Deferred	100.00
Cadman DBP Limited	Ordinary	100.00
Castrol (U.K.) Limited	Ordinary	100.00
Castrol Holdings Americas Limited	Ordinary	100.00
Castrol Holdings International Limited	Ordinary	100.00
Castrol Offshore Limited	Ordinary	100.00
Exmoor Nominee Limited	Ordinary	51.00
Exmoor Properties GP Limited	Ordinary	51.00
Exmoor Properties PF LP	Membership Interest	51.00
Fosroc Expandite Limited	Ordinary	100.00
Fotech Group Limited	Ordinary	100.00
GTA FPSO Company Ltd	Ordinary	100.00
Guangdong Investments Limited	Ordinary	100.00
H2 Teesside Limited	Ordinary	100.00
HyGreen Teesside Limited	Ordinary	100.00
Insight Analytics Solutions Holdings Limited	Ordinary	100.00
Insight Analytics Solutions Limited	Ordinary	100.00
Iraq Petroleum Company Limited	Ordinary	100.00
Kenilworth Oil Company Limited[d]	Ordinary	100.00
Low Carbon Friends Limited	Ordinary	100.00
Lubricants UK Limited	Ordinary	100.00

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14. Related undertakings of the group – continued

Lytt Limited	Ordinary	100.00
Net Zero North Sea Storage Holdings Limited	Ordinary	100.00
Net Zero North Sea Storage Limited	Ordinary	100.00
Net Zero Teesside Power Holdings Limited	Ordinary	100.00
Net Zero Teesside Power Limited	Ordinary	100.00
Open Energi Limited	Ordinary	100.00
Open Energy Limited	Ordinary	100.00
Pearl River Delta Investments Limited	Ordinary	100.00
Ropemaker Deansgate Limited	Ordinary	100.00
Ropemaker Properties Limited	Ordinary	100.00
Shafag (Jabrayil) Solar Limited	Ordinary	100.00
Stryde Limited	Ordinary	100.00
The BP Share Plans Trustees Limited[e]	Ordinary	100.00
Viceroy Investments Limited	Ordinary	100.00
Technology Centre, Whitchurch Hill, Pangbourne, Reading, RG8 7QR, United Kingdom		
Castrol Limited	Ordinary	100.00
United States		
100 Shockoe Slip, 2nd Floor, Richmond, VA, 23219, United States		
Collegiate Clean Energy, LLC	Membership Interest	100.00
INGENCO Wholesale Power, L.L.C.	Membership Interest	100.00
112 SW 7th Street, Suite 3C, Topeka, Kansas, 66603, United States		
Flat Ridge Wind Energy, LLC	Membership Interest	100.00
1201 Hays Street Tallahassee, FL, 32301		
Landfill Energy Systems Florida LLC	Membership Interest	100.00
1833 South Morgan Road, Oklahoma City OK 73128, United States		
BPX Midstream LLC	Membership Interest	100.00
1999 Bryan St., STE 900, Dallas, TX, 75201, United States		
Acamar Energy Project, LLC	Membership Interest	100.00
Andromedae Energy Project, LLC	Membership Interest	100.00
Arche Energy Project, LLC	Membership Interest	100.00
Atria Energy Project, LLC	Membership Interest	100.00
Bellatrix Energy Project, LLC	Membership Interest	100.00
BP Solar SHH, LLC	Membership Interest	100.00
BP Solar SHP, LLC	Membership Interest	100.00
BPX Operating Company	Ordinary	100.00
Buzz Energy Project, LLC	Membership Interest	100.00
Cassiopeia Energy Project, LLC	Membership Interest	100.00
Cepheus Energy Project, LLC	Membership Interest	100.00
Cressida Energy Project, LLC	Membership Interest	100.00
Delphinus Energy Project, LLC	Membership Interest	100.00
Despina Energy Project, LLC	Membership Interest	100.00
Draconis Energy Project, LLC	Membership Interest	100.00
Elanor Energy Project, LLC	Membership Interest	100.00
Electra Energy Project, LLC	Membership Interest	100.00
Juliet Energy Project, LLC	Membership Interest	100.00
Maia Energy Project, LLC	Membership Interest	100.00
Minkar Energy Project, LLC	Membership Interest	100.00
Mira Energy Project, LLC	Membership Interest	100.00
Nashira Energy Project, LLC	Membership Interest	100.00
Nunki Energy Project LLC	Membership Interest	100.00
Peacock Energy Project, LLC	Membership Interest	100.00
Perdita Energy Project, LLC	Membership Interest	100.00
Persei Energy Project, LLC	Membership Interest	100.00
Rigel Energy Project, LLC	Membership Interest	100.00
Shaula Energy Project II, LLC	Membership Interest	100.00
Shaula Energy Project III, LLC	Membership Interest	100.00
Shaula Energy Project, LLC	Membership Interest	100.00
Spica Energy Project, LLC	Membership Interest	100.00
Subra Energy Project, LLC	Membership Interest	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

Taika Energy Project, LLC	Membership Interest	100.00
Tania Energy Project, LLC	Membership Interest	100.00
Telesto Energy Project, LLC	Membership Interest	100.00
Tesni Energy Project, LLC	Membership Interest	100.00
Thalassa Energy Project, LLC	Membership Interest	100.00
Venatici Energy Project, LLC	Membership Interest	100.00
Zibal Energy Project, LLC	Membership Interest	100.00
208 South LaSalle Street, Suite 814, Chicago, IL, 60604-1101, United States		
Oradnats, Inc.	Ordinary	100.00
2108 55th Street, Suite 105, Boulder CO 80301, United States		
Insight Analytics Solutions USA, Inc	Ordinary	100.00
211 E. 7th Street, Suite 620, Austin, TX, 78701, United States		
Gulf Coast Environmental Systems, LLC (dba Conifer Systems LLC)	Membership Interest	100.00
Toro Energy of Indiana, LLC	Membership Interest	60.00
2405 York Road, Ste 201, Lutherville Timonium, MD, 21093-2264, United States		
BP Products North America Inc.	Ordinary	100.00
251 East Ohio Street, Suite 500, Indianapolis IN 46204, United States		
AmProp Finance Company	Ordinary	100.00
BP Foundation Incorporated	Membership Interest	100.00
Standard Oil Company, Inc.	Ordinary	100.00
2595 Interstate Drive, Suite 103, Harrisburg, PA 17110, United States		
PEI Power II, LLC	Membership Interest	100.00
PEI Power LLC	Membership Interest	100.00
2626 Glenwood Avenue, Suite 550, Raleigh, NC, 27608, United States		
Big Run Power Producers, LLC	Membership Interest	100.00
2711 Centerville Road, Suite 400, Wilmington, DE, 19808, United States		
Amoco Oil Holding Company	Ordinary	100.00
Amoco Pipeline Holding Company	Ordinary	100.00
BP International Services Company	Ordinary	100.00
Finite Resources, Inc.	Ordinary	80.50
Orion Post Land Investments, LLC	Membership Interest	100.00
2900 West Road STE 500, East Lansing, MI, 48823, United States		
Canton Renewables, LLC	Membership Interest	50.00
2908 Poston Avenue, Nashville, TN 37203, United States		
CERF Shelby, LLC	Membership Interest	50.00
Tennessee Renewable Group LLC	Membership Interest	100.00
306 W. Main Street, Suite 512, Frankfort, KY, 40601, United States		
Fresh-Serve Bakeries LLC	Membership Interest	100.00
Thornton Transportation LLC	Membership Interest	100.00
334, North Senate Avenue, Indianapolis, IN, 46204-1708, United States		
BP Corporation North America Inc.	Ordinary	100.00
3800 North Central Avenue, Suite 460, Phoenix, AZ, 85012, United States		
Sargas Energy Project, LLC	Membership Interest	100.00
400 Cornerstone Drive, Suite 240, Williston VT 05495, United States		
Saturn Insurance Inc.	Ordinary	100.00
435 Devon Park Drive, Suite 700, Wayne, PA, 19087, United States		
Carbon Reduction Corporation	Ordinary	80.50
Finite Carbon Corporation	Ordinary	80.50
4400 Easton Commons Way , Suite 125, Columbus OH 43219, United States		
Baltimore Ennis Land Company, Inc.	Ordinary	100.00
Exomet, Inc.	Ordinary	100.00
The Standard Oil Company	Ordinary	100.00
45 Memorial Circle, Augusta ME 04330, United States		
BP Pipelines (North America) Inc.	Ordinary	100.00
4568 Mayfield Rd. Suite 204, Cleveland, OH, 44121, United States		
Satelytics, Inc.	Preference	89.46
7 St. Paul Street, Suite 820, Baltimore MD 21202, United States		
TA HQ LLC	Membership Interest	100.00
TA Ventures LLC	Membership Interest	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

★ See glossary on **page 373**

14. Related undertakings of the group – continued

TA West Greenwich LLC	Membership Interest	100.00
701 South Carson Street Suite 200, Carson City, NV, 89701, United States		
Amoco Marketing Environmental Services Company	Ordinary	100.00
80 State Street, Albany, NY, United States		
Model City Energy, LLC	Membership Interest	100.00
Modern Innovative Energy, LLC	Membership Interest	100.00
Seneca Energy II, LLC	Membership Interest	100.00
814 Thayer Avenue, Bismarck, ND, 58501-4018, United States		
The Anaconda Company	Ordinary	100.00
8585 Old Dairy Rd STE 208, Juneau, AK, 99801, United States		
Frontier Operation Services, LLC	Membership Interest	100.00
920 North King Street, 2nd Floor, Wilmington DE 19801, United States		
BPRY Caribbean Ventures LLC	Membership Interest	70.00
921 S. Orchard St. Ste G, Boise ID 83705, United States		
IGI Resources, Inc.	Ordinary	100.00
Bank of America Center, 16th Floor, 1111 East Main Street, Richmond, VA, 23219, United States		
Amoco Environmental Services Company	Ordinary, Preference	100.00
c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808, United States		
AH Medora LFG, LLC	Membership Interest	100.00
AHJRLLFG, LLC	Membership Interest	100.00
AHMLFG, LLC	Membership Interest	100.00
Archaea AD, LLC	Class B Membership Interest	100.00
Archaea CCS LLC	Membership Interest	100.00
Archaea Energy II LLC	Membership Interest	100.00
Archaea Energy Marketing LLC	Membership Interest	100.00
Archaea Energy Operating LLC	Membership Interest	100.00
Archaea Energy Services LLC	Membership Interest	100.00
Archaea Holdings, LLC	Membership Interest	100.00
Archaea Infrastructure, LLC	Membership Interest	100.00
Archaea Lutum, LLC	Membership Interest	100.00
Archaea Operating LLC	Membership Interest	100.00
Archaea Real Estate Holdings LLC	Membership Interest	100.00
Archaea Ventures LLC	Membership Interest	100.00
Aria Energy East LLC	Membership Interest	100.00
Aria Energy LLC	Membership Interest	100.00
Aria Energy Operating LLC	Membership Interest	100.00
Assai Energy, LLC	Membership Interest	100.00
Aurum Renewables LLC	Class B Membership Interest	100.00
Biofuels Coyote Canyon Biogas, LLC	Membership Interest	100.00
BioFuels San Bernardino Biogas, LLC	Membership Interest	100.00
Cefari RNG OKC, LLC	Membership Interest	50.00
CES Biogas LLC	Membership Interest	100.00
Cherry Island Renewable Energy, LLC	Membership Interest	100.00
CII Methane Management III, LLC	Membership Interest	100.00
CII Methane Management IV, LLC	Membership Interest	100.00
Eagle Point RNG LLC	Membership Interest	100.00
EIF KC Landfill Gas, LLC	Membership Interest	100.00
Element Markets Renewable Natural Gas, LLC	Membership Interest	100.00
Emerald City Renewables LLC	Membership Interest	100.00
Industrial Power Generating Company, LLC	Membership Interest	100.00
INGENCO Renewable Development LLC	Membership Interest	100.00
Innovative Energy Systems, LLC	Membership Interest	100.00
Innovative/Colonie, LLC	Membership Interest	100.00
Innovative/DANC, LLC	Membership Interest	100.00
Innovative/Fulton, LLC	Membership Interest	100.00
LES Development LLC	Membership Interest	100.00
LES Manager LLC	Membership Interest	100.00
LES Operations Services LLC	Membership Interest	100.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

LES Renewable NG LLC	Membership Interest	100.00
NextGen Power Holdings LLC	Membership Interest	100.00
Petro Franchise Systems LLC	Membership Interest	100.00
RNG Moovers LLC	Class B Membership Interest	47.50
Rochelle Energy LLC	Membership Interest	100.00
South Shelby RNG, LLC	Membership Interest	50.00
TA Franchise Systems LLC	Membership Interest	100.00
TA Operating LLC	Membership Interest	100.00
TA Operating Montana LLC	Partnership interest	100.00
TA Ventures 2 LLC	Membership Interest	100.00
Timberline Energy, LLC	Class A Membership Interest	100.00
UGID Broad Mountain, LLC	Membership Interest	100.00
Zeus Renewables LLC	Membership Interest	100.00
Zimmerman Energy LLC	Membership Interest	100.00
Corporation Service Company 1127 Broadway Street NE, Suite 310 Salem, OR, 17110, United States		
Finley BioEnergy, LLC	Membership Interest	100.00
Corporation Trust Center, 1209 Orange Street, Wilmington, DE, 19801, United States		
AE Cedar Creek Holdings LLC	Membership Interest	100.00
AE Goshen II Holdings LLC	Membership Interest	100.00
AE Goshen II Wind Farm LLC	Membership Interest	100.00
AE Power Services LLC	Membership Interest	100.00
AE Wind PartsCo LLC	Membership Interest	100.00
Air BP Canada LLC	Membership Interest	100.00
AM/PM International Inc.	Ordinary	100.00
American Oil Company	Ordinary	100.00
Amoco (U.K.) Exploration Company, LLC	Membership Interest	100.00
Amoco Chemical (Europe) S.A.	Ordinary	100.00
Amoco Cypress Pipeline Company	Ordinary	100.00
Amoco Destin Pipeline Company	Ordinary	100.00
Amoco International Petroleum Company	Ordinary	100.00
Amoco Louisiana Fractionator Company	Ordinary	100.00
Amoco Main Pass Gathering Company	Ordinary	100.00
Amoco MB Fractionation Company	Ordinary	100.00
Amoco MBF Company	Ordinary	100.00
Amoco Netherlands Petroleum Company	Ordinary	100.00
Amoco Nigeria Petroleum Company	Ordinary	100.00
Amoco Norway Oil Company	Ordinary	100.00
Amoco Overseas Exploration Company	Ordinary	100.00
Amoco Properties Incorporated	Ordinary	100.00
Amoco Remediation Management Services Corporation	Ordinary	100.00
Amoco Research Operating Company	Ordinary	100.00
Amoco Rio Grande Pipeline Company	Ordinary	100.00
Amoco Somalia Petroleum Company	Ordinary	100.00
Amoco Sulfur Recovery Company	Ordinary	100.00
Amoco Tri-States NGL Pipeline Company	Ordinary	100.00
Amprop, Inc.	Ordinary	100.00
Anaconda Arizona, Inc.	Ordinary	100.00
Archaea Energy Inc.	Ordinary	100.00
ARCO British Limited, LLC	Membership Interest	100.00
ARCO El-Djazair Holdings Inc.	Ordinary	100.00
ARCO Environmental Remediation, L.L.C.	Membership Interest	100.00
ARCO Gaviota Company	Ordinary	100.00
ARCO Midcon LLC	Membership Interest	100.00
ARCO Unimar Holdings LLC	Membership Interest	100.00
Atlantic Richfield Company	Ordinary; Preference	100.00
Australia Resource Holdings Inc.	Ordinary	100.00
Auwahi Wind Energy Holdings LLC	Membership Interest	100.00
Blueprint Power Technologies LLC	Membership Interest	100.00

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14. Related undertakings of the group – continued

BP Alternative Energy North America Inc.	Ordinary	100.00
BP America Chemicals Company	Ordinary	100.00
BP America Foreign Investments Inc.	Ordinary	100.00
BP America Inc.	Ordinary; Ordinary B	100.00
BP America Production Company	Ordinary	100.00
BP AMI Leasing, Inc.	Ordinary	100.00
BP Argentina Exploration Company	Membership Interest	100.00
BP Argentina Holdings LLC	Membership Interest	100.00
BP Berau Ltd.	Ordinary	100.00
BP Biofuels Advanced Technology Inc.	Ordinary	100.00
BP Biofuels North America LLC	Membership Interest	100.00
BP Bomberai Ltd.	Ordinary	100.00
BP Brazil Tracking L.L.C.	Membership Interest	100.00
BP Canada Energy Marketing Corp.	Membership Interest	100.00
BP Canada Investments Inc.	Ordinary	100.00
BP Capital Markets America Inc.	Ordinary	100.00
BP Carbon Solutions LLC	Membership Interest	100.00
BP Caribbean Company	Ordinary	100.00
BP Central Atlantic Offshore Wind Holdings LLC	Membership Interest	100.00
BP Central Atlantic Offshore Wind LLC	Membership Interest	100.00
BP Central Pipelines LLC	Membership Interest	51.00
BP Chemical Remediation Holdings LLC	Membership Interest	100.00
BP China Exploration and Production Company	Ordinary	100.00
BP Company North America Inc.	Ordinary; Redeemable preference	100.00
BP Containment Response System Holdings LLC	Membership Interest	100.00
BP Egypt Company	Ordinary	100.00
BP Energy Company	Ordinary	100.00
BP Energy Holding Company LLC	Membership Interest	100.00
BP Energy Retail Company California LLC	Membership Interest	100.00
BP Energy Retail Company LLC	Membership Interest	100.00
BP Exploration & Production Inc.	Ordinary; Preference	100.00
BP Gas Supply (Angola) LLC	Membership Interest	50.00
BP Gulf of Mexico Midstream Holding LLC	Membership Interest	100.00
BP Latin America LLC	Membership Interest	100.00
BP Latin America Upstream Services Inc.	Ordinary	100.00
BP Louisiana Energy Park LLC	Membership Interest	100.00
BP Lubricants USA Inc.	Ordinary	100.00
BP Mariner Holding Company LLC	Membership Interest	100.00
BP Midstream Partners GP LLC	Membership Interest	100.00
BP Midstream Partners Holdings LLC	Membership Interest	100.00
BP Midstream Partners LP	Ordinary	100.00
BP Midwest Product Pipelines Holdings LLC	Membership Interest	51.00
BP Northwest Offshore Wind Holdings LLC	Membership Interest	100.00
BP Northwest Offshore Wind LLC	Membership Interest	100.00
BP Nutrition Inc.	Ordinary	100.00
BP Offshore Gathering Systems Inc.	Ordinary	100.00
BP Offshore Pipelines Company LLC	Membership Interest	100.00
BP Offshore Response Company LLC	Membership Interest	100.00
BP Offshore Wind America Holding Company LLC	Membership Interest	100.00
BP Offshore Wind America LLC	Membership Interest	100.00
BP Oil Pipeline Company	Ordinary	100.00
BP Oil Shipping Company, USA	Ordinary	100.00
BP One Pipeline Company LLC	Membership Interest	51.00
BP Pakistan (Badin) Inc.	Ordinary	100.00
BP Pakistan Exploration and Production, Inc.	Ordinary	100.00
BP Pipelines (Alaska) Inc.	Ordinary	100.00
BP Pulse Fleet North America Inc.	Ordinary	100.00
BP SC Holdings LLC	Membership Interest	100.00

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14. Related undertakings of the group – continued

BP Scale Up Factory North America Inc.	Ordinary	100.00
BP Solar Holding LLC	Membership Interest	100.00
BP Solar International Inc.	Ordinary	100.00
BP Southern Cone Company	Ordinary	100.00
BP Technology Ventures Inc.	Ordinary	100.00
BP Trinidad and Tobago LLC	Membership Interest	70.00
BP US Offshore Wind Energy LLC	Membership Interest	100.00
BP Wind Energy Beacon Holding LLC	Membership Interest	100.00
BP Wind Energy Empire Holding LLC	Membership Interest	100.00
BP Wind Energy North America Inc.	Ordinary	100.00
BP Wiriagar Ltd.	Ordinary	100.00
BPX (Eagle Ford) Gathering LLC	Membership Interest	75.00
BPX (Karnes) Gathering LLC	Membership Interest	100.00
BPX (Permian) Gathering LLC	Membership Interest	100.00
BPX Energy Inc.	Ordinary	100.00
BPX Gathering Holdings LLC	Membership Interest	100.00
BPX Production Company	Ordinary	100.00
Burmah Castrol Holdings Inc.	Ordinary	100.00
Casitas Pipeline Company	Ordinary	100.00
Castrol Caribbean & Central America Inc.	Ordinary	100.00
CH-Twenty, Inc.	Ordinary	100.00
Clean Eagle RNG, LLC	Membership Interest	50.00
Coastal Offshore Renewable Energy LLC	Membership Interest	100.00
Cuyama Pipeline Company	Ordinary	100.00
Elm Holdings Inc.	Ordinary	100.00
Energy Global Investments (USA) Inc.	Ordinary	100.00
Enstar LLC	Membership Interest	100.00
Flat Ridge 2 Holdings LLC	Membership Interest	100.00
Flat Ridge 2 Wind Energy LLC	Membership Interest	100.00
Flat Ridge 2 Wind Holdings LLC	Membership Interest	100.00
Flat Ridge Interconnection LLC	Membership Interest	100.00
Foseco Holding, Inc.	Membership Interest	100.00
Foseco, Inc.	Ordinary	100.00
Fowler I Holdings LLC	Membership Interest	100.00
Fowler Ridge Holdings LLC	Membership Interest	100.00
Fowler Ridge I Land Investments LLC	Membership Interest	100.00
Fowler Ridge II Holdings LLC	Membership Interest	100.00
Fowler Ridge III Wind Farm LLC	Membership Interest	100.00
Fowler Ridge Wind Farm LLC	Membership Interest	100.00
Gardena Holdings Inc.	Ordinary	100.00
Highlands Ethanol, LLC	Membership Interest	100.00
Ken-Chas Reserve Company	Ordinary	100.00
Lightning Renewables, LLC	Membership Interest	60.00
Mardi Gras Transportation System Company LLC	Membership Interest	100.00
Mavrix, LLC	Membership Interest	50.00
Mehoopany Holdings LLC	Membership Interest	100.00
Mountain City Remediation, LLC	Membership Interest	100.00
North America Funding Company	Ordinary	100.00
Orion Delaware Mountain Wind Farm LP	Membership Interest	100.00
Orion Energy Holdings, LLC	Membership Interest	100.00
Orion Energy L.L.C.	Membership Interest	100.00
Pan American Energy US LLC	Membership Interest	51.00
Remediation Management Services Company	Ordinary	100.00
Richfield Oil Corporation	Ordinary	100.00
Rolling Thunder I Power Partners, LLC	Membership Interest	100.00
Sherbino I Holdings LLC	Membership Interest	100.00
Sherbino Mesa I Land Investments LLC	Membership Interest	100.00
Southern Ridge Pipeline Holding Company	Ordinary	100.00
Stryde Inc.	Ordinary	100.00

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14. Related undertakings of the group – continued

Thorntons LLC	Membership Interest	100.00
TLK Holding Company LLC	Membership Interest	100.00
TLK Intermediate Holding Company LLC	Membership Interest	100.00
TLK Operating Company LLC	Membership Interest	100.00
Toledo Refinery Holding Company LLC	Membership Interest	100.00
Union Texas International Corporation	Ordinary	100.00
Vastar Pipeline, LLC	Membership Interest	100.00
Westlake Houston Development, LLC	Membership Interest	100.00
Whiting Clean Energy, Inc.	Membership Interest	100.00
Venezuela		
Av. Francisco de Miranda, con primera avenida de Los Palos, Grandes, Edif Cavendes, piso 9, ofi 903, Los Palos Grandes, Caracas / Miranda, Chacao / Caracas, 1060, Venezuela		
BP Petroleo y Gas, S.A.	Ordinary	100.00
Viet Nam		
9th Floor, 22-36 Nguyen Hue Street, 57-69F Dong Khoi Street, District 1, Ho Chi Minh City, Viet Nam		
Castrol BP Petco Limited Liability Company	Membership Interest	65.00
Zimbabwe		
Barking Road, Willowvale, Harare, Zimbabwe		
Castrol Zimbabwe (Private) Limited	Membership Interest	100.00

14. Related undertakings of the group – continued

Related undertakings other than subsidiaries

Company by country of incorporation and registered office address	Ownership interest	%
Albania		
Air BP Albania Sh.A., Aeroporti Nderkombetar i Tiranes, "Nene Tereza", Post Box 2933 in Tirana, Albania		
Air BP Albania SHA	Ordinary	50.00
Argentina		
Av. Leandro N. Alem 1180, piso 11°, Buenos Aires, Argentina		
Field Services Enterprise S.A.	Ordinary	50.00
Lithos Desarollos Energeticos S.A.	Ordinary	50.00
Pan American E&P S.A.	Ordinary	50.00
Parque Eolico Del Sur S.A.	Ordinary	27.50
Terminal CP S.A.U.	Ordinary	50.00
Vientos Ombu III S.A.	Ordinary	25.00
Calle 14, No 781, Piso 2, Oficina 3, Ciudad de La Plata, Provincia de Buenos Aires, Argentina		
Barranca Sur Minera S.A.	Ordinary	50.00
Carlos María Della Paolera 265, Piso 22, Ciudad Autónoma de Buenos Aires, Argentina		
Axion Energy Argentina S.A.	Membership Interest	50.00
RSE & RCE S.A.U.	Ordinary	50.00
Florida 1, Piso 10, Buenos Aires, Argentina		
Oleoductos del Valle (Oldelval) S.A.	Ordinary	50.00
Francisco Behr 20, Barrio Pueyrredon, Comodoro Rivadavia, Provincia del Chubut, Argentina		
Manpetrol S.A.	Ordinary	50.00
Lavalle 190, piso 6 Depto L, Buenos Aires, Argentina		
Vientos Patagonicos Chubut Norte III S.A.	Ordinary	24.50
Vientos Sudamericanos Chubut Norte IV S.A.	Ordinary	24.50
O'Higgins N° 194, Rio Grande, Argentina		
Pan American Fueguina S.A.	Ordinary	50.00
Pan American Sur S.A.	Ordinary	50.00
San Martin 140, Piso 2, Buenos Aires, Argentina		
Central Dock Sud S.A.	Ordinary	50.00
Australia		
11 Lagoon Court, Samford Valley, QLD 4520, Australia		
Australasian Lubricants Manufacturing Company Pty Ltd	Ordinary A	50.00
34 Kent Road, Mascot, NSW 2020, Australia		
5B Holdings Pty Limited	Preference Series B (27.47%)	9.80
CBW Level 19, 181 William Street, Melbourne VIC 3000, Australia		
3725 Sharp Development Pty Ltd	Ordinary	49.97
433 Link Development Company Pty Ltd	Ordinary	49.97
892 Yarrawonga Development Pty Ltd	Ordinary	49.97
Goorambat Landco Pty Ltd	Ordinary	49.97
Goulburn River FinCo Pty Limited	Ordinary	49.97
Goulburn River Fund Pty Limited	Ordinary	49.97
Goulburn River HoldCo 2 Pty Limited	Ordinary	49.97
Goulburn River Trust	Units	49.97
Lightsource Asset Management Australia Pty Ltd	Ordinary	49.97
Lightsource Australia SPV 2 Pty Ltd	Ordinary	49.97
Lightsource Australia SPV 3 Pty Ltd	Ordinary	49.97
Lightsource Australia SPV 4 Pty Ltd	Ordinary	49.97
Lightsource Development Services Australia Pty Ltd	Ordinary	49.97
Lightsource Energy Markets Pty Ltd	Ordinary	49.97
Lightsource Labs Australia Pty Limited	Ordinary	49.97
Lightsource LS Labs Australia Operations Pty Ltd	Ordinary	49.97
Lightsource Renewable Energy (Australia) Pty Ltd	Ordinary	49.97
Lower Wonga Solar Farm Pty Ltd	Ordinary	49.97
LS Australia Equity HoldCo1 Pty Ltd	Ordinary	49.97
LS Australia FinCo 1 Pty Ltd	Ordinary	49.97
LS Australia FinCo 2 Pty Ltd	Ordinary	49.97
LS Australia FinCo 3 Pty Ltd	Ordinary	49.97

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14. Related undertakings of the group – continued

LS Australia HoldCo 1 Pty Ltd	Ordinary	49.97
LS Land Holdings Pty Ltd	Ordinary	49.97
Sun Spot 3 Pty Ltd	Ordinary	49.97
Wellington LandCo Pty Ltd	Ordinary	49.97
Wellington North Solar Farm Pty Ltd	Ordinary	49.97
West Mokoan Solar Farm Pty Ltd	Ordinary	49.97
West Wyalong FinCo Pty Ltd	Ordinary	49.97
West Wyalong Fund Pty Ltd	Ordinary	49.97
West Wyalong HoldCo 2 Pty Ltd	Ordinary	49.97
West Wyalong Trust	Membership Interest	49.97
Woolooga BESS FinCo Pty Limited	Ordinary	49.97
Woolooga BESS Fund Pty Limited	Ordinary	49.97
Woolooga BESS HoldCo 2 Pty Limited	Ordinary	49.97
Woolooga FinCo Pty Ltd	Ordinary	49.97
Woolooga Fund Pty Ltd	Ordinary	49.97
Woolooga HoldCo 2 Pty Ltd	Ordinary	49.97
Woolooga Trust	Membership Interest	49.97
Wunghnu Solar Farm FinCo Pty Ltd	Ordinary	49.97
Company Matters Pty Ltd, Level 12, 680 George Street, Sydney NSW 2000, Australia		
Airport Fuel Services Pty. Limited	Ordinary	20.00
Cairns Airport Refuelling Service Pty Ltd	Ordinary	33.33
Level 10, 12 Creek Street, Brisbane, QLD 4000, Australia		
Ocwen Energy Pty Ltd	Ordinary	49.50
Level 16, 80 Collins Street, South Tower, Melbourne, Victoria, 3000, Australia		
Australian Renewable Energy Hub Pty Ltd	Ordinary	48.32
Level 16, Alluvion Building, 58 Mounts Bay Road, Perth, WA, Australia		
North West Shelf Lifting Coordinator Pty Ltd	Ordinary B (100.00%)	16.67
Level 3, Unit 3, 22 Albert Road, South Melbourne VIC 3205, Australia		
Australian Terminal Operations Management Pty Ltd	Ordinary	50.00
Suite 8.02, 28 O'Connell Street, Sydney, New South Wales 2000, Australia		
XPANSIV Limited	Ordinary (18.87%); Preference Series A (26.16%)	19.86
Austria		
Am Tankhafen 4, 4020 Linz, Austria		
TLM Tanklager Management GmbH	Membership Interest	49.00
Brucknerstraße 4, 1041 Wien, Austria		
ABG Autobahn-Betriebe GmbH	Membership Interest	32.58
Innsbrucker Bundesstraße 95, 5020 Salzburg, Austria		
Salzburg Fuelling GmbH	Membership Interest	50.00
Radlpaßstraße 6, 8502 Lannach, Austria		
Erdol-Lagergesellschaft m.b.H.	Membership Interest	23.00
Trabrennstraße 6-8 3, Wien, A-1020, Austria		
Aircraft Refuelling Company GmbH	Membership Interest	33.33
Bahamas		
Trinity Place Annex, Corner of Frederick & Shirley Streets, P.O. Box N-4805, Nassau, Bahamas		
PAE E & P Bolivia Limited	Ordinary	50.00
Pan American Energy Investments Ltd.	Ordinary	50.00
Bolivia (Plurinational State of)		
Av San Martin 1700, Cuarto Anillo, Edificio Centro Empresarial Equipetrol, Piso 6, Zona Oeste, Equipetrol Norte, Santa Cruz de la Sierra, Bolivia (Plurinational State of)		
YPFB Chaco S.A.	Ordinary	50.00
Cuarto anillo, Avda. Ovidio Barbery N° 4200, Edificio Torre, e/ Jaime Román y Victor Pinto, Equipetrol Norte, Santa Cruz de la Sierra, Bolivia (Plurinational State of)		
PAE Oil & Gas Bolivia Ltda.	Ordinary	50.00
Brazil		
1675 South State Street, Suite B, Dover, Kent Country, DE, 19901 US, Brazil		
Pan American Energy Energias Renovaveis Ltda.	Ordinary	50.00
Al Santos, 74, Andar 7 Conj 72 Sala 53, Cerqueira Cesar, Sao Paulo, 01.418-000, Brazil		
Lightsource Milagres Holding 1 S.A.	Ordinary	49.97

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14. Related undertakings of the group – continued

Alameda Santos, 74, 7° andar, conjunto 72, sala 43, Cerqueira Cesar, Municipality of São Paulo, State of São Paulo - SP - CEP 01418-000, Brazil		
Lightsource Bom Lugar Holding 2 S.A.	Ordinary	49.97
Lightsource Brasil Energia Renovável Partições S.A.	Membership Interest	49.97
Alameda Santos,74, 7th floor, suite 72, room 111, Cerqueira César, Municipality of São Paulo, State of São Paulo, 01418-000, Brazil		
Lightsource Bom Lugar Holding 1 S.A.	Ordinary	49.97
Avenida Atlântica, no. 1.130, 2nd floor (part), Copacabana,RJ, Rio de Janeiro, 22021-000, Brazil		
NFX Combustíveis Marítimos Ltda.	Ordinary	50.00
Avenida Bernardino de Campos, 98, 12th Floor, Room 38, Suite A, Paraíso, Zip Code 04004-040, Sao Paulo, Brazil		
Lightsource Brasil Energia Renovável Ltda	Ordinary	49.97
Avenida das Nações Unidas, 12.399, 4° andar, cj. 41B, sala 01, São Paulo, Brazil		
Itumbiara Trading Comercio Importação e Exportação ltda.	Ordinary	50.00
Avenida das Nações Unidas, nº 12.399, 4° andar, Brooklin Paulista, São Paulo, CEP 04578-000, Brazil		
BP Bunge Bioenergia S.A.	Ordinary	50.00
Avenida Paris, 4077, Suite 3, Cascata,São Paulo State, Paulinia, 13046-061, Brazil		
Terminal de Combustiveis Paulinia S.A.	Ordinary	50.00
Cidade de Caraúbas, Estado do Rio Grande do Norte, Sítio Retiro, S/N, Estrada Caraúbas sentido Mirandas, Km 15, lado esquerdo, Zona Rural, CEP 59780-000, Brazil		
Lightsource Caraúbas Geração de Energia Ltda	Ordinary	49.97
City and State of Rio de Janeiro,at Rua Voluntários da Pátria, No. 113, 11 floor, Botafogo, 22.270-000, Brazil		
Gas Natural Acu S.A.	Ordinary	30.00
Estrada de São Romão, KM23, S/N, Zona Rural, Fazenda São Francisco, Buritizeiro/MG, CEP 39280-000, Brazil		
Lightsource Andorinhas Geração de Energia Ltda.	Ordinary	49.97
Estrada Mossoró sentido Jaguaruana, S/N, Km 48, lado esquerdo, Zona Rural, Sitio Aroeira Grande, Municipio de Baraúna/RN, CEP 59695-000, Brazil		
Lightsource Jaguar Geração de Energia Ltda	Ordinary	49.97
Estrada Municipal Itumbiara / Chacoeira Dourada, Fazenda Jandaia, Gleba B, Goiás, Itumbiara, 75516-126, Brazil		
BP Bioenergia Itumbiara S.A.	Ordinary	50.00
Estrada que liga Brejo Santo a Vila Conceição, porteira da Caatinga Grande, S/N, Zona Rural, Sitio Ludovico, Municipio de Brejo Santo/CE, CEP 63260-000, Brazil		
Lightsource Milagres Expansão Geração de Energia Ltda	Ordinary	49.97
Fazenda Água Amarela, S/N, Itapegipe, Minas Gerais, 38240-000, Brazil		
Itapagipe Bioenergia Ltda.	Ordinary	50.00
Fazenda Guariroba, SN, Zona Rural, Pontes Gestal, São Paulo, 15500-000, Brazil		
Guariroba Bioenergia LTDA	Ordinary	50.00
Fazenda Moema, s/n, Rural, Orindiuva, São Paulo, 15480-000, Brazil		
Bunge Açúcar e Bioenergia S.A.	Ordinary	50.00
Fazenda Recanto, Zona Rural, CEP 38.300-898, Minas Gerais, Ituiutaba, Brazil		
BP Bioenergia Ituiutaba Ltda.	Membership Interest	50.00
Fazenda Saco Dantas, S/N, Área 3 e Área 4, Praia do Açu, São João da Barra, Rio de Janeiro, 28.200-000, Brazil		
UTE GNA II Geração de Energia S.A.	Ordinary	33.50
Fazenda Santa Bárbara, S/N, Distrito de Zelândia, Santa Juliana, Minas Gerais, 38175-000, Brazil		
Santa Juliana Bioenergia Ltda.	Ordinary	50.00
Fazenda São Bento da Ressaca, S/N, Zona Rural, Frutal, Minas Gerais, 38200-000, Brazil		
Frutal Bioenergia Ltda.	Ordinary	50.00
Fazenda Terra Nova, located at Rod. Padre Cicero (CE 153), S/N, KM 58, Lima Campos,Ceara, Ico, 63.435-000, Brazil		
Lightsource Bom Lugar IV Geração de Energia S.A.	Ordinary	49.97
Lightsource Bom Lugar IX Geração de Energia S.A.	Ordinary	49.97
Lightsource Bom Lugar V Geração de Energia S.A.	Ordinary	49.97
Lightsource Bom Lugar VI Geração de Energia S.A.	Ordinary	49.97
Lightsource Bom Lugar VII Geração de Energia S.A.	Ordinary	49.97
Lightsource Bom Lugar VIII Geração de Energia S.A.	Ordinary	49.97
Fazenda Vista Alegre I, KM 25, S/N, Zona Rural, Jaiba/ MG, CEP 39508-000, Brazil		
Lightsource Pomar do Sertão Geração de Energia Ltda.	Ordinary	49.97
KM 2.4 Sítio Cajueiro road - KM491 BR 116 KM 492, Caatinga Grande Zona Rural, Municipality of Abaiara, State of Ceará, 63.240.000, Brazil		
Lightsource Milagres I Geração de Energia S.A	Ordinary	49.97
Lightsource Milagres II Geração de Energia S.A	Ordinary	49.97
Lightsource Milagres III Geração de Energia S.A	Ordinary	49.97

14. Related undertakings of the group – continued

Lightsource Milagres IV Geração de Energia S.A	Ordinary	49.97
Lightsource Milagres V Geração de Energia S.A	Ordinary	49.97
No. 804, 5th floor, Glória, Rio de Janeiro, Rio de Janeiro, 22210-010, Brazil		
Gas Natural Açu Infraestrutura S.A.	Ordinary	27.91
Praça Gago Coutinho, 540 – Ed. Aeroporto Internacional de Salvador – Box Air BP, city of Salvador, State of Bahia, 41.602-065, Brazil		
Air BP Petrobahia Ltda	Ordinary	50.00
Rod. BA 827, S/N, KM 05 Estrada do Cantinho dos Aflitos, Fazenda Divino Espírito Santo, City of Barreiras, State of Bahia, 47.819-899, Brazil		
Lightsource Rio Branco Geração de Energia Ltda	Ordinary	49.97
Rodovia Doutor Mendel Steinbruch 10.800, Distrito Industrial, Maracanau, Ceara, 61.939-906, Brazil		
Ventos De Santa Virginia Energias Renovaveis S.A.	Ordinary	50.00
Ventos De Santo Ubaldo Energias Renovaveis S.A.	Ordinary	50.00
Ventos De Santo Urbano I Energias Renovaveis S.A.	Ordinary	50.00
Ventos De Sao Romualdo Energias Renovaveis S.A.	Ordinary	50.00
Ventos De Sao Teofano Energias Renovaveis S.A.	Ordinary	50.00
VENTOS DE SAO TEONAS ENERGIAS RENOVAVEIS S.A.	Ordinary	50.00
Ventos De Sao Thomas Energias Renovaveis S.A.	Ordinary	50.00
Ventos De Sao Tilao Energias Renovaveis S.A.	Ordinary	50.00
VENTOS DE SAO VIGILIO ENERGIAS RENOVAVEIS S.A.	Ordinary	50.00
Rodovia GO 410, km 51 à esquerda, Fazenda Canadá, s/n, Zona Rural, Goiás, Edéia, 75940-000, Brazil		
BP Bioenergia Tropical S.A.	Ordinary	50.00
Rodovia GO 410, km 51 à esquerda, Fazenda Canadá, s/n, Zona Rural, Sala 01 Estado de Goiás, Edéia, 75940-000, Brazil		
Tropical Biogás Ltda	Ordinary	50.00
Rodovia Iaciara sentido Alvorada, Margem Direita, S/N, Zona Rural, Fazenda Ferradura e Campo Aberto, Município de Posse/GO, CEP 73900-000, Brazil		
Lightsource Guara Geracao de Energia Ltda	Ordinary	49.97
Rodovia SP - 463 Elyeser Montenegro Magalhãe, KM 186, S/N, Zona Rural,São Paulo, Ouroeste, 15685-000, Brazil		
Usina Ouroeste - Açúcar e Álcool Ltda.	Ordinary	50.00
Rodovia TO 010 KM 20, S/N, Zona Rural, Cidade de Pedro Afonso, Tocantins, 77710-000, Brazil		
Pedro Afonso Bioenergia Ltda.	Ordinary	50.00
Rua Manoel da Nóbrega n°1280, 10° andar, Sao Paulo, Sao Paulo, 04001-902, Brazil		
Pan American Energy do Brasil Ltda.	Membership Interest	50.00
Rua Principal, Fazenda Recanto, Zona Rural, Caixa Postal 01, Minas Gerais, Ituiutaba, 38.300-898, Brazil		
BP Bioenergia Campina Verde Ltda.	Membership Interest	50.00
Rua Voluntários da Pátria n. 113, 11th floor, Botafogo, City and State of Rio de Janeiro, Zip code: 22.270-000., Brazil		
Açu Trucked LNG S.A.	Membership Interest	30.00
Sítio Paus Pretos, S/N, BR 316, Rood Floresta/Petrolandia, Km 314, Floresta/PE, Zip Code 56400-000, Brazil		
Lightsource Flor Geração de Energia Ltda.	Ordinary	49.97
Cayman Islands		
190 Elgin Avenue, George Town, KY1-9005, Cayman Islands		
Georgian Pipeline Company	Ordinary	30.37
P.O. Box 309, Ugland House, 113 South Church Street, George Town, Cayman Islands		
Azerbaijan Gas Supply Company Limited	Ordinary	23.99
Azerbaijan International Operating Company	Ordinary	30.37
BTC International Investment Co.	Membership Interest	30.10
South Caucasus Pipeline Company Limited	Membership Interest	28.83
South Caucasus Pipeline Holding Company Limited	Membership Interest	28.83
South Caucasus Pipeline Option Gas Company Limited	Ordinary	28.83
The Baku-Tbilisi-Ceyhan Pipeline Company	Membership Interest	30.10
PO Box 472, 2nd Floor, Harbour Place, 103 South Church Street, George Town, KY1-1106, Cayman Islands		
R&B Technology Holding CO., LTD	Series B Anti-Dilution (13.33%); Series B Internal Ext (40.00%); Preference Series A (78.95%); Preference Series B+ (67.21%)	27.16
Chile		
Nueva de Lyon N° 145, piso 12, oficina 1203, Edificio Costa, Santiago de Chile, Chile		
Pan American Energy Chile Limitada	Ordinary	50.00

14. Related undertakings of the group – continued

China		
10-11/FTime Finance Center, No.4001 Shennan Dadao, Futian Street, Futian District, Guangdong Province, Shenzhen, China		
Guangdong Dapeng LNG Company Limited	Membership Interest	30.00
11/F, Building No.2, No. 32 Lingang Road Section One, Xihang Port Street, Shuangliu District,Sichuan Province, Chengdu, China		
CNAF Air BP General Aviation Fuel Company Limited	Membership Interest	49.00
5th Floor, Guangsha Ruiming Building, No. 231 Moganshan Road, Xihu District, Hangzhou, Zhejiang Province, China		
BP Sinopec (ZheJiang) Petroleum Co., Ltd	Membership Interest	40.00
A3#608, Dongjiang Commercial Center, #599 Eerduosi Road, Free Trade Zone (Dongjiang Free Trade Zone), China		
Xin Ying Energy Marketing Co., Ltd.	Membership Interest	50.00
Fu Yong Town, Bao An county, Guangdong Province, ShenZhen Airport, China		
Shenzhen Cheng Yuan Aviation Oil Company Limited	Membership Interest	25.00
Guangdong Dapeng Liquefied Natural Gas Filling Station, Cheng Tou Corner, Xia Sha Village, Dapeng Street, Dapeng New District, Shenzhen, China		
Shenzhen Dapeng LNG Marketing Company Limited	Membership Interest	30.00
No. B933, 9-14/F Office, Building A, Baoye Center, NO.31 JIA, China		
Castrol DongFeng Lubricant Co., Ltd	Membership Interest	50.00
Room 3501, Room 3502, Room 3503, No.62, Jinsui Road, Tianhe District, Guangzhou, China		
Guangzhou Aulton New Energy Technology Co., Ltd.	Membership Interest	20.00
Room 526, No.13,Longxue Avenue middle, Nansha District, Guangzhou, China		
BP Guangzhou Development Oil Products Company Limited	Membership Interest	40.00
Room 8309, Floor 3, Yufanghailian Office Building, No. 1 Indian Ocean Road, West Coast Comprehensive Bonded Area, Qingdao, China		
BP SPG Energy Trading Co., Ltd.	Membership Interest	49.00
Room A, building B, 5th floor, no. 22 Gangkou road, Jiangmen, China		
BP Petro China Jiangmen Fuels Co., Ltd.	Membership Interest	49.00
Room B1, 11th Floor, No.22 Gang Kou Yi Road, Peng Jiang District,Guangdong Province, Jiangmen, China		
BP PetroChina Petroleum Co., Ltd	Membership Interest	49.00
Cuba		
Calle 6 No 319, esq 5ta. Ave., Miramar, Playa, La Habana, Cuba		
Castrol Cuba S.A.	Ordinary	50.00
Cyprus		
90 Archiepiskopou str, Dromolaxia – Meneou, 7020 Larnaca, Cyprus		
LCA Aviation Fuelling Systems Limited	Ordinary	35.00
Denmark		
GA Centervej 1, Billund, DK-7190, Denmark		
Billund Refuelling I/S	Membership Interest	50.00
Kastrup Lufthavn, 2770 Kastrup, Denmark		
Danish Refuelling Services I/S	Membership Interest	50.00
Danish Tankage Services I/S	Membership Interest	50.00
Københavns, Lufthavn, 2770 Kastrup, Denmark		
Braendstoflageret Kobenhavns Lufthavn I/S	Partnership interest	20.83
Egypt		
14 Kamal El Tawil ST, Zamalek, Cairo, Egypt		
Lightsource BP Hassan Allam Developments for Renewable Energy S.A.E	Ordinary	24.99
5 El Mokhayam El Daiem St, 6th Sector, Nasr City, Egypt		
El Temsah Petroleum Company "PETROTEMSAH"	Ordinary	25.00
Mediteranean Gas Co. "MEDGAS"	Ordinary	25.00
70/72 Road 200, Maadi, Cairo, Egypt		
Pharaonic Petroleum Company "PhPC"	Ordinary	25.00
85 El Nasr Road, Cairo, Egypt		
Natural Gas Vehicles Company "NGVC"	Ordinary	40.00
Al Shaheed St., Nasr City, Cairo, Egypt		
El Burg Offshore Company (EBOC)	Ordinary	20.00
Building No. 349 & 351, Third Sector of City Centre, Fifth Settlement, New Cairo, Egypt		
United Gas Derivatives Company "UGDC"	Ordinary	33.33
Street 200, Building 70-72, Maadi, Cairo, Egypt		
Damietta Petroleum Company "PETRODAMIETTA"	Ordinary	50.00
North El Burg Petroleum Company "PETRONEB"	Ordinary	25.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

France		
1 Place Gustave Eiffel, Rungis, 94150, France		
Société d'Avitaillement et de Stockage de Carburants Aviation 'SASCA'	Membership Interest	40.00
1165 rue Jean-René Guilibert Gauthier de la Lauzière – CS 20583, Aix-les-Milles Cedex 02, 13290, France		
Lightsource France Development SAS	Ordinary	49.97
150 Avenue Yves Farge, Saint Pierre des Corps, 37700, France		
Depot Petrolier De Saint-Pierre Des Corps D.P.S.P.C.	Membership Interest	20.00
27 Route du Bassin Numéro 6, Gennevilliers, 92230, France		
Société de Gestion de Produits Pétroliers - SOGEPP	Ordinary	37.00
3 Rue des Vignes, Aéroport Roissy Charles de Gaulle, Tremblay en France, 93290, France		
Fuelling Aviation Service - FAS	Membership Interest	50.00
562 Avenue du Parc de l'Ile, Nanterre, 92000, France		
Entrepot petrolier de Chambery	Ordinary	32.00
65 Rue d'Italie, Colombier-Saugnieu, 69124, France		
Stockage de Carburant d'Aviation Lyon	Membership Interest	40.00
Aeroport Bale Mulhouse, Saint-Louis, 68300, France		
Stockage de Carburant d'Aviation	Membership Interest	40.00
Aeroport Toulouse-Blagnac, Blagnac, 31700, France		
Stockage de Carburant d'Aviation Toulouse	Membership Interest	40.00
Germany		
Am Borsigturm 68, Berlin, 13507, Germany		
Service4Charger Holding GmbH	Preference Series A (75.00%)	19.88
Am Stadthafen 60, 45881 Gelsenkirchen, Germany		
TransTank GmbH	Ordinary	50.00
An der Braker Bahn 22, 26122 Oldenburg, Germany		
Klaus Köhn GmbH	Ordinary	50.00
Köhn & Plambeck GmbH & Co. KG	Partnership interest	50.00
Berghausener Straße 96, 40764 Langenfeld, Germany		
AGES International GmbH & Co. KG, Langenfeld	Partnership interest	24.70
AGES Maut System GmbH & Co. KG, Langenfeld	Partnership interest	24.70
Brunnenstraße 19-21, Berlin, 10119, Germany		
Digital Charging Solutions GmbH	Membership Interest	33.33
c/o WeWork, Kemperplatz 1, Berlin, 10785, Germany		
Lightsource Development Deutschland GmbH	Ordinary	49.97
Lightsource GP GmbH	Ordinary	49.97
Lightsource LP 1 GmbH	Ordinary	49.97
Godorfer Hauptstraße 186, 50997 Köln, Germany		
Rhein-Main-Rohrleitungstransportgesellschaft mbH	Ordinary	35.00
Jenfelder Allee 80, Hamburg, 22039, Germany		
STDG Strassentransport Dispositions Gesellschaft mbH	Ordinary	50.00
Konsul-Smidt-Strasse 14, 28217 Bremen, Germany		
Etzel-Kavernenbetriebsgesellschaft mbH & Co. KG	Partnership interest	33.33
Etzel-Kavernenbetriebs-Verwaltungsgesellschaft mbH	Ordinary	33.33
Luisenstraße 5 a, 26382 Wilhelmshaven, Germany		
Ammenn GmbH	Ordinary	50.00
Kurt Ammenn GmbH & Co. KG	Partnership interest	50.00
Rheinstraße 36, 49090 Osnabrück, Germany		
Fip Verwaltungs GmbH	Ordinary	50.00
Heinrich Fip GmbH & Co. KG	Partnership interest	50.00
Saganer Straße 31, 90475 Nürnberg, Germany		
Beer Energien GmbH & Co. KG	Membership Interest	50.00
Beer GmbH	Ordinary	50.00
Spaldingstraße 64, 20097 Hamburg, Germany		
Mobene Beteiligungs GmbH & Co. KG	Partnership interest	50.00
Mobene Beteiligungs Verwaltungs GmbH	Ordinary	50.00
Mobene GmbH & Co. KG	Partnership interest	50.00
Mobene Verwaltungs-GmbH	Ordinary	50.00

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14. Related undertakings of the group – continued

Sportallee 6, 22335 Hamburg, Germany		
Dusseldorf Fuelling Services GbR	Membership Interest	33.00
Hamburg Tank Service (HTS) GbR	Partnership interest	33.00
HFS Hamburg Fuelling Services GbR	Partnership interest	50.00
LFS Langenhagen Fuelling Services GbR	Partnership interest	50.00
TFSS Turbo Fuel Services Sachsen GbR	Partnership interest	20.00
TGFH Tanklager-Gesellschaft Frankfurt-Hahn GbR	Partnership interest	50.00
TGHL Tanklager-Gesellschaft Hannover-Langenhagen GbR	Partnership interest	50.00
TGK Tanklagergesellschaft Koln-Bonn	Partnership interest	25.00
Steindamm 55, 20099 Hamburg, Germany		
GVÖ Gebinde-Verwertungsgesellschaft der Mineralölwirtschaft mbH	Ordinary	20.36
Überseeallee 1, 20457, Hamburg, Germany		
Flughafen Hannover Pipeline Verwaltungsgesellschaft mbH	Ordinary	50.00
Flughafen Hannover Pipelinegesellschaft mbH & Co. KG	Partnership interest	50.00
Wesermünder Straße 1, 27729 Hambergen, Germany		
Tecklenburg GmbH	Ordinary	50.00
Tecklenburg GmbH & Co. Energiebedarf KG	Partnership interest	50.00
Westfalendamm 166, 44141 Dortmund, Germany		
DOPARK GmbH	Ordinary	25.00
Wittener Straße 45, 44789 Bochum, Germany		
CSG Convenience Service GmbH	Ordinary	24.80
Ghana		
Number 1, Rehoboth Place, Dade Street, North Labone Estates, Accra, Greater Accra, Accra Metropolitan, P. O. BOX CT327, Ghana		
BP West Africa Supply Limited	Ordinary	50.00
Greece		
2,Vouliagmenis Ave & Papaflessa, 16777 Elliniko, Attika, Athens, Greece		
GISSCO S.A.	Ordinary	50.00
68, Vasilisis Sofias Ave., Athens, 115 28, Greece		
AI ENERGY SINGLE MEMBER P.C.	Ordinary	49.97
Akarnanika Photovoltaic Systems Single-Member Private Company	Ordinary	49.97
Clean Energy 3 S.M.S.A.	Ordinary	49.97
Clean Energy 5 S.M.S.A.	Ordinary	49.97
Enipeas Single Member S.A.	Ordinary	49.97
Green Energy Plus 4 S.M.S.A.	Ordinary	49.97
Green Energy Plus 5 S.M.S.A.	Ordinary	49.97
Green Energy Plus 6 S.M.S.A.	Ordinary	49.97
Lightsource Renewable Energy Greece Development Single Member S.A.	Ordinary	49.97
Lightsource Renewable Energy Greece Projects Single Member S.A.	Ordinary	49.97
International airport "El. Venizelos", Athens, Greece		
SAFCO SA	Ordinary	33.33
Local Community of Kyrakalis, number 0, Municipality of Grevena, 51100, Greece		
Clean Energy 1 S.M.S.A.	Ordinary	49.97
Clean Energy 2 S.M.S.A.	Ordinary	49.97
Clean Energy 4 S.M.S.A.	Ordinary	49.97
Clean Energy 6 S.M.S.A.	Ordinary	49.97
Green Energy Plus 1 S.M.S.A.	Ordinary	49.97
Green Energy Plus 2 S.M.S.A.	Ordinary	49.97
Green Energy Plus 3 S.M.S.A.	Ordinary	49.97
Green Energy Plus 7 S.M.S.A.	Ordinary	49.97
Green Energy Plus 8 S.M.S.A.	Ordinary	49.97
Sun Power 1 S.M.P.C.	Other	49.97
India		
1207-1212,A2, Palladium, Nr., Orchid Wood Opp. Divyabhaskar, Corporate Rd, Makarba, Ahmedabad, India		
Blu-Smart Mobility Private Limited	Preference Series A (50.61%); Preference Series A1 (19.43%); Preference Series A2 (19.20%)	20.96

14. Related undertakings of the group – continued

3rd Floor, Maker Chambers IV, 222, Nariman Point, Mumbai, 400 021, India		
Reliance BP Mobility Limited	Ordinary	49.00
Magenta House, Plot No. D-285, MIDC, Turbhe, Navi Mumbai, India, 400705		
Magenta EV Solutions Private Limited	Preference (53.47%)	20.89
One World Center, 16th Floor, Tower 2A, Senapati Bapat Marg, Mumbai, Mumbai City MH 400013, India		
Eversource Capital Private Limited	Ordinary	24.99
Unit Nos.71 & 737th Floor, Maker Maxity, 2nd North Avenue, Bandra - Kurla Complex, Bandra (East), Mumbai 400 051, Maharashtra, India		
India Gas Solutions Private Limited	Ordinary	50.00
Indonesia		
AKR Tower 25th floor, Jalan Panjang No.5, Kebon Jeruk, Jakarta Barat, 11530, Indonesia		
PT. Aneka Petroindo Raya	Ordinary	49.90
PT. Dirgantara Petroindo Raya	Ordinary	49.90
Iraq		
Iraqi Airways HQ Building, Baghdad International Airport, Baghdad, Iraq		
United Iraqi Company for Airports and Ground Handling Services Limited (MASIL)	Ordinary	19.60
Naz City, Building J, Suite 10 Erbil, Iraq		
Mach Monument Aviation Fuelling Co. Ltd	Ordinary	70.00
Ireland		
70 Northumberland Road, Ballsbridge, Dublin, D04 VH66, Ireland		
BLS Bulk Liquid Storage Cork Limited	Ordinary	30.00
Trinity House, Charleston Road, Ranelagh, Dublin, D06 C8X4, Ireland		
Lightsource Ireland Development Holdings Limited	Ordinary	49.97
Lightsource Ireland SPV 6 Limited	Ordinary	49.97
Lightsource Renewable Energy Ireland Limited	Ordinary	49.97
Powerverse Connect Limited	Ordinary	49.97
Ubiworx Systems Designated Activity Company	Ordinary	49.97
Israel		
3 Shenkar Street, Herzelia, Israel		
StoreDot Ltd.	Preference Series C (21.47%); Preference Series D (14.45%)	5.10
Italy		
Via Emilia 1, 20097 San Donato Milanese, Italy		
Azule Energy Angola S.p.A	Membership Interest	50.00
Via Giacomo Leopardi 7, Milano, 20123, Italy		
Belenos s.r.l.	Ordinary	32.48
Lightsource Renewable Energy Italy Development, S.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy Finco s.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy Holdings S.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 1 s.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 10 s.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 11 S.r.l	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 12 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 13 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 14 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 15 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 16 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 17 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 18 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 19 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 2 s.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 20 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 21 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 22 S.R.L.	Quotas	49.97
Lightsource Renewable Energy Italy SPV 23 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 24 S.R.L.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 3 s.r.l	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 4 s.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 6 s.r.l.	Ordinary	49.97

14. Related undertakings of the group – continued

Lightsource Renewable Energy Italy SPV 8 s.r.l.	Ordinary	49.97
Lightsource Renewable Energy Italy SPV 9 s.r.l.	Ordinary	49.97
Pollon s.r.l.	Ordinary	32.48
Via Sardegna, Rome, 38 00187, Italy		
Air BP Italia Spa	Ordinary	50.00
Via Venti Settembre, 69, Palermo, 90141, Italy		
EM Sicilia Green S.r.l.	Ordinary	49.97
Marsala Energie S.r.l.	Ordinary	49.97
Melilli Energie S.r.l.	Ordinary	49.97
ML Energie Rinnovabili S.r.l.	Ordinary	49.97
Viale Francesco Scaduto, 2d, Palermo, 90144, Italy		
HF Solar 1 S.r.l.	Ordinary	49.97
HF Solar 10 S.r.l.	Ordinary	49.97
HF Solar 2 S.r.l.	Ordinary	49.97
HF Solar 3 S.r.l.	Ordinary	49.97
HF Solar 4 S.r.l	Ordinary	49.97
HF Solar 5 S.r.l	Ordinary	49.97
Japan		
4-2 Otemachi 1-chome, Chiyoda-ku, Tokyo, Japan		
Ishikari Offshore Wind LLC	Ordinary	49.00
Oga Katagami Akita Offshore Wind LLC	Membership Interest	27.78
Korea (the Republic of)		
#125 DD-01, 14F, 416 Hangang-daero, Jung-gu, Seoul, Korea (the Republic of)		
SK Devco Solar Power Plant Co., Ltd.	Ordinary	49.97
#125 DD-02, 14F, 416 Hangang-daero, Jung-gu, Seoul, Korea (the Republic of)		
LS Renewable Energy Co., Ltd.	Ordinary	49.97
#125 DD-03, 14F, 416 Hangang-daero, Jung-gu, Seoul, Korea (the Republic of)		
Gangjin Solar Power Plant Co., Ltd.	Ordinary	49.97
#132, 14F, 416 Hangang-daero, Jung-gu, Seoul, Korea (the Republic of)		
Lightsource Renewable Energy Development South Korea Co., Ltd	Ordinary	49.97
109 Sideung-ro, Hwangsan-myeon, Jeonlanam-do, Korea (the Republic of)		
Haenam Solar Power Plant Co., Ltd.	Ordinary	49.97
Mauritius		
3rd Floor, Standard Chartered Tower, Bank Street, 19 Cybercity, Ebene, 72201, Mauritius		
EverSource Management Holdings	Ordinary	24.99
Mexico		
Av. Paseo de la Reforma 505 piso 32, Colonia Cuauhtémoc, Delegación Cuauhtémoc (06500), CDMX, Mexico		
EMSEP S.A. de C.V.	Ordinary	50.00
Torre A, piso 4, oficina 402, Calzada Legaria 549, Colonia 10 de Abril, Delegación Miguel Hidalgo, Ciudad de Mexico, C. P. 11250, Mexico		
Hokchi Energy S.A. de C.V.	Ordinary	50.00
Mozambique		
Praca Dos Trabalhadores, Nr 09, Distrito Urbano 1, Maputo, Mozambique		
Maputo International Airport Fuelling Services (MIAFS) Limitada	Membership Interest	50.00
Netherlands		
Anchoragelaan 6, 1118LD Luchthaven Schiphol, Netherlands		
Gezamenlijke Tankdienst Schiphol B.V.	Ordinary	50.00
Bos en Lommerplein 280, Amsterdam, 1055RW, Netherlands		
Lightsource BP Hassan Allam Holdings B.V.	Ordinary	24.99
Butaanweg 215, NL-3196 KC Vondelingenplaat, Rotterdam, Havennummer, 3045, Netherlands		
N.V. Rotterdam-Rijn-Pijpleiding Maatschappij (RRP)	Ordinary	44.40
d'Arcyweg 76, 3198 NA Europoort Rotterdam, Netherlands		
Azule Energy Angola (Block 18) B.V.	Ordinary	50.00
Gustav Mahlerplein 28, 1082MA, Amsterdam, Netherlands		
Lightsource Renewable Energy Netherlands Development B.V.	Ordinary	49.97
Lightsource Renewable Energy Netherlands Holdings B.V.	Ordinary	49.97
Zonneweide Liesvelden B.V.	Ordinary	49.97
Zonneweide LS 4 B.V.	Ordinary	49.97
Zonneweide LS 5 B.V.	Ordinary	49.97

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14. Related undertakings of the group – continued

Zonneweide LS 6 B.V.	Ordinary	49.97
Moezelweg 101, 3198LS Europoort, Rotterdam, Netherlands		
Maatschap Europoort Terminal	Partnership interest	50.00
Oude Vijfhuizerweg 6, 1118LV Luchthaven, Schiphol, Netherlands		
Aircraft Fuel Supply B.V.	Ordinary	25.00
Rijndwarsweg 3, 3198 LK Europoort, Rotterdam, Netherlands		
BP AOC Pumpstation Maatschap	Membership Interest	50.00
BP Esso AOC Maatschap	Partnership interest	22.80
BP Esso Pipeline Maatschap	Membership Interest	50.00
Maasvlakte Europoort Pipeline Maatschap	Partnership interest	50.00
Team Terminal B.V.	Ordinary	22.80
Strawinskylaan 1725, 1077XX Amsterdam, Netherlands		
Azule Energy Angola B.V.	Membership Interest	50.00
Azule Energy Angola Production B.V.	Membership Interest	50.00
Routex B.V.	Ordinary	25.00
New Zealand		
106b Bush Road, Auckland, Albany, 0632, New Zealand		
Wiri Oil Services Limited	Ordinary	27.78
247 Cameron Road, Tauranga, 3110, New Zealand		
McFall Fuel Limited	Ordinary	49.00
RMF Holdings Limited	Ordinary	49.00
399 Moray Place, Dunedin, 9016, New Zealand		
RD Petroleum Limited	Ordinary	49.00
Corporate Services New Zealand Limited, Level 5, 79 Queen Street, Auckland, 1010, New Zealand		
LSNZ Glorit Holdco Limited	Ordinary	49.97
Level 2, Harbour City Tower, 29 Brandon Street, Wellington Central, Wellington, 6011, New Zealand		
Kowhai Park I GP Limited	Ordinary	24.99
Kowhai Park I LP	Limited Partner	49.97
Kowhai Park P GP Limited	Ordinary	49.97
Kowhai Park P LP	Limited Partner	99.95
Level 3, 139 The Terrace, Wellington, 6011, New Zealand		
New Zealand Oil Services Limited	Ordinary	50.00
Level 5, 79 Queen Street, Auckland, 1010, New Zealand		
Lightsource Development Services New Zealand Limited	Ordinary	49.97
LSNZ Kowhai Park HoldCo Limited	Ordinary	49.97
Norway		
Postboks 133, Gardermoen, NO-2061, Norway		
Gardermoen Fuelling Services AS	Ordinary	33.33
Postboks 134, Gardermoen, NO-2061, Norway		
Oslo Lufthavns Tankanlegg AS	Ordinary	33.33
Postboks 36, Stjordal, NO-7501, Norway		
Flytanking AS	Ordinary	50.00
Oman		
P.O.Box 20302/211, 20302, Oman		
BP Dhofar LLC	Ordinary	49.00
Paraguay		
Av. España 1369 esquina San Rafael, Asunción, Paraguay		
Axion Energy Paraguay S.R.L.	Membership Interest	50.00
Peru		
Avenida Ricardo Rivera Navarrete n.501 / room 1602, Lima, Peru		
Air BP PBF del Peru S.A.C.	Ordinary	50.00
Poland		
Grunwaldzka 472B, Gdansk, 80-309, Poland		
Air BP Aramco Poland sp. z o. o.	Ordinary	50.00
ul. Grzybowska 2/29, 00-131, Warszawa, Poland		
Lightsource Development Polska sp. z o.o.	Ordinary	49.97
LS 1 sp. z.o.o.	Ordinary	49.97
LS 10 sp. z o.o.	Ordinary	49.97
LS 11 sp. z o.o.	Ordinary	49.97

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14. Related undertakings of the group – continued

LS 12 sp. z o.o.	Ordinary	49.97
LS 2 sp. z.o.o.	Ordinary	49.97
LS 3 sp. z.o.o.	Ordinary	49.97
LS 4 sp. z.o.o.	Ordinary	49.97
LS 5 sp. z.o.o.	Ordinary	49.97
LS 6 sp. z.o.o.	Ordinary	49.97
LS 7 sp. z.o.o.	Ordinary	49.97
LS 8 sp. z o.o.	Ordinary	49.97
LS 9 sp. z.o.o.	Ordinary	49.97
RD PV Produkcja 5 Spółka Z Ograniczona Odpowiedzialnoscia	Ordinary	49.97
Wena Projekt 2 sp. z o.o.	Ordinary	49.97
Portugal		
Grupo Operacional de Combustiveis do Aeroporto de Lisboa, Edificio 19, 1.º Sala Saba, Lisboa, Portugal		
SABA- Sociedade Abastecedora de Aeronaves, Lda	Ordinary	25.00
Lagoas Park, Edificio 3, Porto Salvo, Oeiras, Portugal		
Charging Together, Unipessoal LDA	Ordinary	50.00
Rua 31 de Agosto, nº 12, 5000 - 305 Vila Real, Portugal		
LSBPDG - Sociedade de Produção De Energia, Limitada	Ordinary	24.99
PTSunHydrogen II, LDA	Ordinary	24.99
PTSunHydrogen III, LDA	Ordinary	24.99
PTSunHydrogen IV, LDA	Ordinary	24.99
PTSUNHYDROGEN V, LDA	Ordinary	24.99
Rua Castilho, No 50, 1250-071, Lisboa, Portugal		
Coherent Modernity Lda	Ordinary	49.97
Coloursflow - Unipessoal Lda	Ordinary	49.97
Forest Constellation - Unipessoal Lda	Ordinary	49.97
Freshpanoply - Lda	Ordinary	49.97
Ignichoice Renewable Energy V, Unipessoal LDA	Ordinary	49.97
Ignidap – Energias Renováveis, Unipessoal Lda	Ordinary	49.97
PTSunHydrogen VI, LDA	Ordinary	24.99
PTSunHydrogen VII, LDA	Ordinary	24.99
PTSunHydrogen, LDA	Ordinary	24.99
Ramisun – Consultoria e Energias Renováveis, Unipessoal Lda.	Ordinary	49.97
Solid Tomorrow - Energia Unipessoal Lda	Ordinary	49.97
Suninger - Consultoria e Energias Renováveis, Unipessoal Lda	Ordinary	49.97
Tolerantdiagonal - Lda	Ordinary	49.97
Rua Júlio Dinis, n.º 247, 6.º, E-1, Edifício Mota Galiza, Parish of Lordelo do Ouro and Massarelos, Porto, 4050-324, Portugal		
Dapsun - Investimentos e Consultoria, LDA.	Ordinary	25.23
Rua Sousa Martins, nº 10, Lisboa 1050 218, Portugal		
Lightsource Development Portugal, Unipessoal Lda	Ordinary	49.97
Lightsource Renewable Energy Portugal (HoldCo), Lda.	Ordinary	49.97
Romania		
Bucureşti Sectorul 1, Bulevardul Dacia, Nr. 20, Biroul Nr. HDR20, Etaj 5, Romania		
LIGHTSOURCE DEVELOPMENT ROMANIA S.R.L.	Ordinary	49.97
Otopeni, 59 Aurel Vlaicu Street, Otopeni, Ilfov County, Romania		
Romanian Fuelling Services S.R.L.	Ordinary	50.00
Russian Federation		
629830 Yamalo-Nenetskiy Anatomy Region, city of Gubkinskiy, Russian Federation		
LLC "Kharampurneftegaz"	Membership Interest	49.00
Kosmodamianskaya nab, 52/3, Moscow, 115035, Russian Federation		
Limited Liability Company Yermak Neftegaz	Membership Interest	49.00
Pervomayskaya street, 32A, Sakha (Yakutiya) Republic, Lensk, 678144, Russian Federation		
Lensky Nefteprovod Limited Liability Company	Membership Interest	20.00
Limited Liability Company TYNGD	Membership Interest	20.00
Shabolovka street 10 building 2, 7th Floor, Room 13, Municipal District Yakimanka, Moscow, 119049, Russian Federation		
Srednelenskoye Limited Liability Company	Membership Interest	49.00
Saudi Arabia		
Industrial Area Unit No 1, Yanbu Alsenayea, 46481 - 4659, Saudi Arabia		
Arabian Production And Marketing Lubricants Company	Ordinary	50.00

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

P O Box 6369, Jeddah 21442, Saudi Arabia		
Peninsular Aviation Services Company Limited[e]	Ordinary	50.00
Singapore		
12 Marina Boulevard, #35-01 MBFC Tower 3, Singapore, 018982, Singapore		
BP Sinopec Marine Fuels Pte. Ltd.	Ordinary	50.00
163 Penang Road, #08-01, Winsland House II, 238463, Singapore		
Green Growth Feeder Fund Pte. Ltd	Ordinary	24.99
8 Marina Boulevard, #05-02, Marina Bay Financial Centre, 018981, Singapore		
Lightsource Singapore Renewables Holdings Private Limited	Ordinary	49.97
Lightsource Singapore Renewables Private Limited	Ordinary	49.97
8 Temasek Boulevard #31-02, Suntec City Tower 3, Singapore 038988, Singapore		
China Aviation Oil (Singapore) Corporation Ltd	Ordinary	20.17
South Africa		
1 Refinery Road, Prospecton, 4110, South Africa		
Shell and BP South African Petroleum Refineries (Pty) Ltd	Ordinary A	37.49
135 Honshu Road, Islandview, Durban, 4052, South Africa		
Blendcor (Pty) Limited	Ordinary B	37.49
199 Oxford Road, Oxford Parks, Dunkeld, Johannesburg, GP, 2196, South Africa		
Masana Petroleum Solutions (Pty) Ltd	Ordinary	37.86
Spain		
163, Paseo de la Castellana, planta baja, Madrid, 28046, Spain		
Charging Together, S.L.	Ordinary	50.00
Calle Alcala numero 63, Madrid, 28014, Spain		
ISC Greenfield 12, S.L.	Ordinary	49.97
Parque FV Borealis, S.L.	Ordinary	49.97
Parque FV Polaris, S.L.	Ordinary	49.97
Calle Américo Vespucio 5-1, planta 2, número 1, Isla de la Cartuja, 41092, Sevilla, Spain		
Guillena 400 Promotores, S.L.	Ordinary	12.27
Calle Jose Ortega y Gasset 22-24, 2nd Floor, 28006 Madrid, Spain		
Global Cotolengo, S.L.U	Ordinary	49.97
Calle José Ortega y Gasset, número 100, 5ª planta, 28006 de Madrid, Spain		
Global Aljarafe, S.L.U	Ordinary	49.97
Global Aroche, S.L.U	Ordinary	49.97
Global Atarazana, S.L.U	Ordinary	49.97
Global Baterno, S.L.U	Ordinary	49.97
Global Baza, S.L.U	Ordinary	49.97
Global Brenes, S.L.U	Ordinary	49.97
Global Tarquinia, S.L.U	Ordinary	49.97
Global Treviso, S.L.U	Ordinary	49.97
Global Valdenoches, S.L.U	Ordinary	49.97
Calle Lituania nº 10, Castellón de la Plana, Spain		
Fundación para la Eficiencia Energética de la Comunidad Valenciana	Membership Interest	33.33
Calle Ortega y Gasset, nº 100, planta quinta, Madrid, 28006, Spain		
Alejandria Power, S.L.U.	Ordinary	49.97
Caletona Servicios y Gestiones, S.L.U.	Ordinary	49.97
Castellana Power, S.L.U.	Ordinary	49.97
Inversiones Energy Madrid, S.L.U.	Ordinary	49.97
ISC Greenfield 7, S.L.	Ordinary	49.97
Khons Sun Power, S.L.U.	Ordinary	49.97
Lightsource Europe Asset Management, SL	Ordinary	49.97
Lightsource Renewable Energy Garnacha, S.L.	Ordinary	49.97
Lightsource Renewable Energy Spain Development, SL	Ordinary	49.97
Lightsource Renewable Energy Spain Holdings, SL	Ordinary	49.97
Lightsource Renewable Energy Spain SPV 1, SL	Ordinary	49.97
Lightsource Renewable Energy Trading, SL	Ordinary	49.97
Lightsource Spain O&M, SL	Ordinary	49.97
Rin Power, S.L.U.	Ordinary	49.97
Sinfonia Solar Energy Power, S.L.U.	Ordinary	49.97

14. Related undertakings of the group – continued

Campus Empresarial Arbea - Edificio No 1, Carretera Fuencarral a Alcobendas (M-603), km 3.8, Alcobendas, Madrid, Spain		
Hokchi Iberica, S.L.	Ordinary	50.00
PAE Desarrollos Energeticos, S.L.	Ordinary	50.00
PAE Energy Holding, S.L.	Membership Interest	50.00
Pan American Energy Group, S.L.	Ordinary B	50.00
Pan American Energy Iberica, S.L.	Ordinary	50.00
Pan American Energy, S.L.	Membership Interest	50.00
Carretera de San Andréss/n, La Jurada-Maria Jiménez, Santa Cruz de Tenerife, Spain		
Terminales Canarios, S.L.	Ordinary	50.00
Paseo de la Castellana 278, Madrid, Spain		
Servicios Logisticos de Combustibles de Aviación, S.L	Ordinary	50.00
Paseo De La Castellana 91 4° 4 Madrid, Spain		
Gómez Narro Renovables 132 kV, A.I.E	Membership Interest	22.72
Sweden		
Box 135, 190 46 Arlanda, Sweden		
A Flygbranslehantering AB (AFAB)	Ordinary	25.00
Box 2154, Landvetter, 438 14, Sweden		
Gothenburgh Fuelling Company AB (GFC)	Ordinary	33.33
Box 22, SE 230 32 Malmö-Sturup, Sweden		
Malmo Fuelling Services AB	Ordinary	33.33
Box 7, 190 45 Arlanda, Sweden		
Stockholm Fuelling Services Aktiebolag	Ordinary	25.00
Switzerland		
Lindenstrasse 2, 6340 Baar, Switzerland		
Trans Adriatic Pipeline AG	Ordinary	20.00
Route de Pré-Bois 17, Cointrin, 1216, Switzerland		
Saraco SA	Ordinary	20.00
Zwüscheteich, Rümlang, 8153, Switzerland		
TAR - Tankanlage Ruemlang AG	Ordinary	27.32
Taiwan (Province of China)		
No. 97, 18F, Songren Rd., Xinyi Dist, Taipei City, 110050, Taiwan (Province of China)		
Hui-Meng Energy Co., Ltd.	Ordinary	49.97
Lightsource Renewable Energy Development Taiwan Limited	Ordinary	49.97
Lightsource Renewable Energy SPV 1 Taiwan Limited	Ordinary	49.97
Lightsource Renewable Energy SPV 2 Taiwan Limited	Ordinary	49.97
Lightsource Renewable Energy SPV 3 Taiwan Limited	Ordinary	49.97
Thailand		
23rd Fl. Rajanakarn Bldg, 3 South Sathon Road, Yannawa South Sathon, Bangkok 10120, Thailand		
Pacroy (Thailand) Co., Ltd.	Ordinary (100.00%); Preference (0.82%)	39.50
Trinidad and Tobago		
Princes Court, Cor. Pembroke & Keate Street, Port-of-Spain, Trinidad and Tobago		
Atlantic LNG 2/3 Company of Trinidad and Tobago Unlimited	Ordinary	42.50
Atlantic LNG Company of Trinidad and Tobago	Ordinary	39.00
Türkiye		
Degirmen yolu cad. No:28, Asia OfisPark K:3 Icerenkoy-Atasehir, Istanbul, 34752, Türkiye		
ATAS Anadolu Tasfiyehanesi Anonim Sirketi[i]	Ordinary	68.00
Kizilirmak Mahallesi, Ufuk Üniversitesi Caddesi, Farilya Business Center, No. 8, Çukurambar, Çankaya, Ankara, Türkiye		
TANAP Dogalgaz Iletim Anonim Sirketi	Ordinary C (100.00%)	12.00
Liman Mah. 60 Sk., Çekisan-Idari Bina sit. No:25 A/1, Konyaalti, Antalya, Türkiye		
Cekisan Depolama Hizmetleri Limited Sirketi	Ordinary	35.00
Yakuplu Mahallesi Genc, Osman Caddesi, No.7 Beylikdüzü, Istanbul, Türkiye		
Ambarli Depolama Hizmetleri Limited Sirketi	Ordinary	50.00
United Arab Emirates		
8th Floor, Standard Chartered Tower, Downtown, Dubai, United Arab Emirates		
Middle East Lubricants Company LLC	Ordinary	29.33
P O Box- 97, Sharjah, United Arab Emirates		
Sharjah Aviation Services Co. LLC	Ordinary B	49.00

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14. Related undertakings of the group – continued

P.O.Box 261781, Dubai, United Arab Emirates		
EMDAD Aviation Fuel Storage FZCO	Ordinary	33.33
Plot No. B003R04, Box No. 9400, Dubai, United Arab Emirates, Dubai, United Arab Emirates		
Emoil Storage Company FZCO	Ordinary	20.00
Unit GD-GB-00-15-BC-26, Level 15, Gate District Gate Building, Dubai International Financial Center, 74777, United Arab Emirates		
Basra Energy Company Limited	Ordinary	49.00
United Kingdom		
1 Wellheads Avenue, Dyce, Aberdeen, AB21 7PB, United Kingdom		
bp Aberdeen Hydrogen Energy Limited	Ordinary B	50.00
S&JD Robertson North Air Limited	Ordinary	49.00
12, Old Broad Street, London, EC2N 1AR, England, United Kingdom		
Azule Energy Holdings Limited	Ordinary	50.00
1st Floor, 282 Earls Court Road, London, SW5 9AS, United Kingdom		
Torro Ventures Ltd.	Ordinary (18.70%); Preference Series B (39.09%)	24.00
29th Floor 40 Bank Street, London, E14 5NR, United Kingdom		
Alyssum Group Limited	Membership Interest	26.23
33 Cavendish Square, London, W1G 0PW, United Kingdom		
Great Ropemaker Partnership (G.P.) Limited	Ordinary B	50.00
Great Ropemaker Property (Nominee 1) Limited	Ordinary	50.00
Great Ropemaker Property (Nominee 2) Limited	Ordinary	50.00
Great Ropemaker Property Limited	Ordinary	50.00
The Great Ropemaker Partnership	Membership Interest	50.00
33 Holborn, 7th Floor, London, EC1N 2HU, England, United Kingdom		
Lightsource Cosecha Limited	Ordinary	49.97
5-7 Alexandra Road, Hemel Hempstead, Hertfordshire, HP2 5BS, England, United Kingdom		
British Pipeline Agency Limited	Ordinary	50.00
United Kingdom Oil Pipelines Limited	Ordinary	22.00
Walton-Gatwick Pipeline Company Limited	Ordinary	42.33
West London Pipeline and Storage Limited	Ordinary	30.50
60 Sloane Avenue, London, SW3 3XB, United Kingdom		
Fly Victor Ltd	Membership Interest	26.23
6th Floor, 60 Gracechurch Street, London, EC3V 0HR, United Kingdom		
Gasrec Ltd	Ordinary A (39.50%)	36.67
713, Cavendish Avenue, Birchwood, Warrington, WA3 6DE, England, United Kingdom		
BiSN Holdings Limited	Preference Series B2 (26.00%)	5.88
7th Floor, 33 Holborn, London, EC1N 2HU, England, United Kingdom		
Burnthouse Solar Limited	Ordinary	49.97
Free Power for Schools 13 Limited	Ordinary	49.97
Free Power for Schools 14 Limited	Ordinary	49.97
Free Power for Schools 15 Limited	Ordinary	49.97
Free Power for Schools 17 Limited	Ordinary	49.97
Free Power for Schools 4 Limited	Ordinary	49.97
Free Power for Schools 5 Limited	Ordinary	49.97
Free Power for Schools 6 Limited	Ordinary	49.97
Free Power for Schools 7 Limited	Ordinary	49.97
Freetricity Central June Limited	Ordinary	49.97
Goulburn River HoldCo 1 Limited	Ordinary	49.97
Lightsource Asset Holdings (Australia) Limited	Ordinary	49.97
Lightsource Asset Holdings (Europe) Limited	Ordinary	49.97
Lightsource Asset Holdings (Spain) Limited	Ordinary	49.97
Lightsource Asset Holdings (UK) Limited	Ordinary	49.97
Lightsource Asset Holdings (USA) Limited	Ordinary	49.97
Lightsource Asset Holdings (Vendimia I) Limited	Ordinary	49.97
Lightsource Asset Holdings (Vendimia II) Limited	Ordinary	49.97
Lightsource Asset Holdings 1 Limited	Ordinary	49.97
Lightsource Asset Holdings 2 Limited	Ordinary	49.97

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

Lightsource Asset Holdings 3 Limited	Ordinary	49.97
Lightsource Asset Management Limited	Ordinary	49.97
Lightsource Australia FinCo Holdings Limited	Ordinary	49.97
Lightsource Bodegas 2 Limited	Ordinary	49.97
Lightsource Bodegas 3 Limited	Ordinary	49.97
Lightsource Bodegas 4 Limited	Ordinary	49.97
Lightsource Bodegas Limited	Ordinary	49.97
Lightsource BP Renewable Energy Investments Limited	Ordinary A (49.97%); Ordinary C (49.96%); Ordinary D (50.00%); Ordinary E (50.00%); Ordinary F (49.95%); Ordinary G (50.00%)	49.97
Lightsource Brazil Holdings 1 Limited	Ordinary	49.97
Lightsource Brazil Holdings 2 Limited	Ordinary	49.97
Lightsource Commercial Rooftops Limited	Ordinary	49.97
Lightsource Construction Management Limited	Ordinary	49.97
Lightsource Corinthian Limited	Ordinary	49.97
Lightsource Development Services Limited	Ordinary	49.97
Lightsource Egypt Holdings Limited	Ordinary	49.97
Lightsource Elk Hill 2 Solar Limited	Ordinary	49.97
Lightsource Elk Hill Solar 2 Holdings Limited	Ordinary	49.97
Lightsource Finance 55 Limited	Ordinary	49.97
Lightsource Finca 2 Limited	Ordinary	49.97
Lightsource Finca 3 Limited	Ordinary	49.97
Lightsource Finca Limited	Ordinary	49.97
Lightsource France Holdings UK Limited	Ordinary	49.97
Lightsource Grace 1 Limited	Ordinary	49.97
Lightsource Grace 2 Limited	Ordinary	49.97
Lightsource Grace 3 Limited	Ordinary	49.97
Lightsource Holdings 1 Limited	Ordinary	49.97
Lightsource Holdings 2 Limited	Ordinary	49.97
Lightsource Holdings 3 Limited	Ordinary	49.97
Lightsource Iberia Greenfield Holdings Limited	Ordinary	49.97
Lightsource Iberia Project Holdings Limited	Ordinary	49.97
Lightsource Impact 1 Limited	Ordinary	49.97
Lightsource Impact 2 Limited	Ordinary	49.97
Lightsource India Holdings (Mauritius) Limited	Ordinary	49.97
Lightsource India Holdings Limited	Ordinary	49.97
Lightsource India Investments (UK) Limited	Ordinary	49.97
Lightsource India Limited	Ordinary A	25.49
Lightsource India Maharashtra 1 Holdings Limited	Ordinary	49.97
Lightsource India Maharashtra 1 Limited	Ordinary	49.97
Lightsource Kingfisher Holdings Limited	Ordinary	49.97
Lightsource Labs 1 Limited	Ordinary	49.97
Lightsource Largescale Limited	Ordinary	49.97
Lightsource Manzanilla Limited	Ordinary	49.97
Lightsource Operations 1 Limited	Ordinary	49.97
Lightsource Operations 2 Limited	Ordinary	49.97
Lightsource Operations 3 Limited	Ordinary	49.97
Lightsource Operations Services Limited	Ordinary	49.97
Lightsource Poland Holdings (UK) Limited	Ordinary	49.97
Lightsource Property 1 Limited	Ordinary	49.97
Lightsource Property 2 Limited	Ordinary	49.97
Lightsource Property Investment Holdings Ltd	Ordinary	49.97
Lightsource Property Investment Management (LPIM) LLP	LLP Designated Member	49.97
Lightsource Property Investments 1 Ltd	Ordinary	49.97
Lightsource Renewable Energy (India) Limited	Ordinary	49.97
Lightsource Renewable Energy Asia Pacific Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy Australia Holdings Limited	Ordinary	49.97

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14. Related undertakings of the group – continued

Lightsource Renewable Energy Greece Holdings (UK) Limited	Ordinary	49.97
Lightsource Renewable Energy Greece Holdings 2 (UK) Limited	Ordinary	49.97
Lightsource Renewable Energy Greece Projects 2 Limited	Ordinary	49.97
Lightsource Renewable Energy Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy Iberia Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy India Assets Limited	Ordinary	49.97
Lightsource Renewable Energy India Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy India Projects Limited	Ordinary	49.97
Lightsource Renewable Energy Italy Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy Limited	Ordinary	49.97
Lightsource Renewable Energy Moristel Limited	Ordinary	49.97
Lightsource Renewable Energy Netherlands Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy New Zealand Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy Poland Projects 1 Limited	Ordinary	49.97
Lightsource Renewable Energy Poland Projects 2 Limited	Ordinary	49.97
Lightsource Renewable Energy Portugal Holdings Limited	Ordinary	49.97
Lightsource Renewable Energy Portugal Projects 1 Limited	Ordinary	49.97
Lightsource Renewable Energy Portugal Projects 2 Limited	Ordinary	49.97
Lightsource Renewable Energy Tempranillo Limited	Ordinary	49.97
Lightsource Renewable Energy Verdejo Limited	Ordinary	49.97
Lightsource Renewable Global Development Limited	Ordinary	49.97
Lightsource Renewable Services Limited	Ordinary	49.97
Lightsource Renewable Taiwan UK Holdings Limited	Ordinary	49.97
Lightsource Renewable UK Development Limited	Ordinary	49.97
Lightsource Residential Rooftops (PPA) Limited	Ordinary	49.97
Lightsource Residential Rooftops Limited	Ordinary	49.97
Lightsource SPV 101 Limited	Ordinary	49.97
Lightsource SPV 108 Limited	Ordinary	49.97
Lightsource SPV 114 Limited	Ordinary	49.97
Lightsource SPV 116 Limited	Ordinary	49.97
Lightsource SPV 118 Limited	Ordinary	49.97
Lightsource SPV 126 Limited	Ordinary	49.97
Lightsource SPV 127 Limited	Ordinary	49.97
Lightsource SPV 128 Limited	Ordinary	49.97
Lightsource SPV 130 Limited	Ordinary	49.97
Lightsource SPV 138 Limited	Ordinary	49.97
Lightsource SPV 140 Limited	Ordinary	49.97
Lightsource SPV 145 Limited	Ordinary	49.97
Lightsource SPV 149 Limited	Ordinary	49.97
Lightsource SPV 151 Limited	Ordinary	49.97
Lightsource SPV 154 Limited	Ordinary	49.97
Lightsource SPV 162 Limited	Ordinary	49.97
Lightsource SPV 166 Limited	Ordinary	49.97
Lightsource SPV 167 Limited	Ordinary	49.97
Lightsource SPV 171 Limited	Ordinary	49.97
Lightsource SPV 176 Limited	Ordinary	49.97
Lightsource SPV 179 Limited	Ordinary	49.97
Lightsource SPV 18 Limited	Ordinary	49.97
Lightsource SPV 182 Limited	Ordinary	49.97
Lightsource SPV 183 Limited	Ordinary	49.97
Lightsource SPV 184 Limited	Ordinary	49.97
Lightsource SPV 185 Limited	Ordinary	49.97
Lightsource SPV 189 Limited	Ordinary	49.97
Lightsource SPV 19 Limited	Ordinary	49.97
Lightsource SPV 191 Limited	Ordinary	49.97
Lightsource SPV 192 Limited	Ordinary	49.97
Lightsource SPV 199 Limited	Ordinary	49.97
Lightsource SPV 201 Limited	Ordinary	49.97
Lightsource SPV 202 Limited	Ordinary	49.97

14. Related undertakings of the group – continued

Lightsource SPV 203 Limited	Ordinary	49.97
Lightsource SPV 204 Limited	Ordinary	49.97
Lightsource SPV 206 Limited	Ordinary	49.97
Lightsource SPV 212 Limited	Ordinary	49.97
Lightsource SPV 213 Limited	Ordinary	49.97
Lightsource SPV 214 Limited	Ordinary	49.97
Lightsource SPV 215 Limited	Ordinary	49.97
Lightsource SPV 216 Limited	Ordinary	49.97
Lightsource SPV 217 Limited	Ordinary	49.97
Lightsource SPV 222 Limited	Ordinary	49.97
Lightsource SPV 223 Limited	Ordinary	49.97
Lightsource SPV 232 Limited	Ordinary	49.97
Lightsource SPV 233 Limited	Ordinary	49.97
Lightsource SPV 236 Limited	Ordinary	49.97
Lightsource SPV 247 Limited	Ordinary	49.97
Lightsource SPV 25 Limited	Ordinary	49.97
Lightsource SPV 258 Limited	Ordinary	49.97
Lightsource SPV 259 Limited	Ordinary	49.97
Lightsource SPV 263 Limited	Ordinary	49.97
Lightsource SPV 264 Limited	Ordinary	49.97
Lightsource SPV 286 Limited	Ordinary	49.97
Lightsource SPV 287 Limited	Ordinary	49.97
Lightsource SPV 288 Limited	Ordinary	49.97
Lightsource SPV 29 Limited	Ordinary	49.97
Lightsource SPV 35 Limited	Ordinary	49.97
Lightsource SPV 41 Limited	Ordinary	49.97
Lightsource SPV 47 Limited	Ordinary	49.97
Lightsource SPV 56 Limited	Ordinary	49.97
Lightsource SPV 60 Limited	Ordinary	49.97
Lightsource SPV 73 Limited	Ordinary	49.97
Lightsource SPV 78 Limited	Ordinary	49.97
Lightsource SPV 88 Limited	Ordinary	49.97
Lightsource SPV 91 Limited	Ordinary	49.97
Lightsource SPV 98 Limited	Ordinary	49.97
Lightsource Titan Borrower AUD Limited	Ordinary	49.97
Lightsource Titan Borrower EUR Limited	Ordinary	49.97
Lightsource Titan Borrower GBP Limited	Ordinary	49.97
Lightsource Titan Borrower USD Limited	Ordinary	49.97
Lightsource Titan Limited	Ordinary	49.97
Lightsource Trading Limited	Ordinary	49.97
Lightsource Trinidad Holdings (UK) Limited	Ordinary	49.97
Lightsource UK Property Investments 1 LP	Limited Partner	49.98
Lightsource Viking 1 Limited	Ordinary	49.97
Lightsource Viking 2 Limited	Ordinary	49.97
Lightsource Viking Limited	Ordinary	49.97
Lightsource Xenium 1 Limited	Ordinary	49.97
Lightsource Xenium 2 Limited	Ordinary	49.97
LL Property Services 2 Limited	Ordinary	49.97
LL Property Services Limited	Ordinary	49.97
Solar Photovoltaic (SPV2) Limited	Ordinary	49.97
Solar Photovoltaic (SPV3) Limited	Ordinary	49.97
Tiln Connections Ltd	Ordinary	49.97
Tuwale Power Limited	Ordinary	49.97
West Wyalong HoldCo 1 Limited	Ordinary	49.97
Woolooga BESS HoldCo 1 Limited	Ordinary	49.97
Woolooga HoldCo 1 Limited	Ordinary	49.97
Your Power No. 1 Limited	Ordinary	49.97
Your Power No. 10 Limited	Ordinary	49.97
Your Power No. 19 Limited	Ordinary	49.97

14. Related undertakings of the group – continued

Your Power No. 2 Limited	Ordinary	49.97
Your Power No. 3 Limited	Ordinary	49.97
Your Power No. 8 Limited	Ordinary	49.97
9 Caxton House, Broad Street, Great Cambourne, Cambridge, CB23 6JN, England, United Kingdom		
Joint Inspection Group Limited	Membership Interest	14.28
C/O ERNST & YOUNG LLP, The Paragon Counterslip, Bristol, BS1 6BX, United Kingdom		
Green Biofuels Limited	Ordinary	30.00
Calshot Way Central Area, Heathrow Airport, Hounslow, Middlesex, TW6 1PY, United Kingdom		
Aviation Fuel Services Limited	Ordinary	25.00
Chertsey Road, Sunbury on Thames, Middlesex, TW16 7BP, England, United Kingdom		
Azule Energy Exploration (Angola) Limited	Ordinary	50.00
Azule Energy Exploration Angola (KB) Limited	Ordinary	50.00
Azule Energy Limited	Ordinary	50.00
Mona Offshore Wind Holdings Limited	Ordinary	50.00
Mona Offshore Wind Limited	Ordinary	50.00
Morgan Offshore Wind Holdings Limited	Ordinary	50.00
Morgan Offshore Wind Limited	Ordinary	50.00
Morven Offshore Wind Holdings Limited	Ordinary	50.00
Morven Offshore Wind Limited	Ordinary	50.00
Eni House, 10 Ebury Bridge Road, London, SW1W 8PZ, England, United Kingdom		
Solenova Limited	Membership Interest	25.00
VIC CBM Limited	Ordinary	50.00
Virginia Indonesia Co. CBM Limited	Ordinary	50.00
Mclaren Building Suite, 14a Mclaren Building, 46 Priory Queensway, Birmingham, B4 7LR, United Kingdom		
Grid Edge Limited	Preferred Series A (60.00%); Preferred Series A 2 (58.68%)	25.16
Mw1 Building 557 Shoreham Road, Heathrow Airport, London, TW6 3RT, United Kingdom		
Aviation Service (Iraq) Limited	Ordinary B	40.00
Northgate House, 2nd Floor, Upper Borough Walls, Bath, BA1 1RG, England, United Kingdom		
Blue Marble Holdings Limited	Ordinary C (96.53%)	23.58
One Bartholomew Close, London, EC1A 7BL, United Kingdom		
Manchester Airport Storage and Hydrant Company Limited	Ordinary	25.00
Oxbotica Uhq 8050 Alec Issigonis Way, Oxford Business Park North, Oxford, Oxfordshire, OX4 2HW, England, United Kingdom		
Oxa Autonomy Ltd	Ordinary (1.10%); Preference Series B (17.79%); Preference Series C (22.37%)	11.26
Regus Business Centre, Cromac Square, Belfast, Northern Ireland, BT2 8LA, United Kingdom		
Lightsource Renewable Energy (NI) Limited	Ordinary	49.97
Lightsource SPV 266 (NI) Limited	Ordinary	49.97
Lightsource SPV 267 (NI) Limited	Ordinary	49.97
Lightsource SPV 268 (NI) Limited	Ordinary	49.97
Lightsource SPV 269 (NI) Limited	Ordinary	49.97
Lightsource SPV 270 (NI) Limited	Ordinary	49.97
Lightsource SPV 271 (NI) Limited	Ordinary	49.97
Lightsource SPV 272 (NI) Limited	Ordinary	49.97
Lightsource SPV 273 (NI) Limited	Ordinary	49.97
Lightsource SPV 274 (NI) Limited	Ordinary	49.97
Lightsource SPV 275 (NI) Limited	Ordinary	49.97
Lightsource SPV 276 (NI) Limited	Ordinary	49.97
Lightsource SPV 277 (NI) Limited	Ordinary	49.97
Lightsource SPV 278 (NI) Limited	Ordinary	49.97
Lightsource SPV 279 (NI) Limited	Ordinary	49.97
Lightsource SPV 280 (NI) Limited	Ordinary	49.97
Lightsource SPV 281 (NI) Limited	Ordinary	49.97
Lightsource SPV 282 (NI) Limited	Ordinary	49.97
Lightsource SPV 283 (NI) Limited	Ordinary	49.97
Lightsource SPV 284 (NI) Limited	Ordinary	49.97
Lightsource SPV 285 (NI) Limited	Ordinary	49.97

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

Shell Centre, London, SE1 7NA, United Kingdom		
Shell Mex and B.P. Limited	Ordinary B	40.00
SM Realisations Limited (Liquidated)	Membership Interest	40.00
The Consolidated Petroleum Company Limited	Ordinary B	50.00
The Consolidated Petroleum Supply Company Limited[9]	Ordinary	50.00
Suite 44 (C/O Best4Business Accountants), Beaufort Court, Admirals Way, London, E14 9XL, United Kingdom		
Pentland Aviation Fuelling Services Limited	Ordinary A; Ordinary B	66.67
Sustainable Workspaces, County Hall, 5th Floor, The Riverside Building, Belvedere Road,London, SE1 7PB, England, United Kingdom		
Powerverse Development Limited	Ordinary	49.97
Powerverse Investments Limited	Ordinary	49.97
Powerverse UK Limited	Ordinary	49.97
Unit 9 Armstrong Mall, Southwood Business Park, Farnborough, GU14 0NR, England, United Kingdom		
Blue Ocean Seismic Services Limited	Preference Series A (51.28%)	31.25
Windsor House, Cornwall Road, Harrogate, England, HG1 2PW, United Kingdom		
C-Capture Limited	Preference Series A (23.17%)	19.30
United States		
108 Lakeland Avenue, Dover, Kent, DE, 19901		
Azule Energy Gas Supply Services Inc.	Ordinary	50.00
15260 Pacific Palisade #204, Pacific Palisades, California, 90271, United States		
Wastefuel Global, Inc.	Series B1 (100.00%);	2.67
1560 Broadway, Suite 2090, Denver, Colorado, 80202, United States		
Cedar Creek II, LLC	Membership Interest	50.00
160 Greentree Drive, Suite 101, City of Dover, County of Kent, DE, 19901, United States		
Zubie, Inc.	Membership Interest	20.30
16192 Coastal Highway, Sussex County, Lewes, DE, 19958, United States		
Aparecida I Power Holding LLC	Membership Interest	25.00
2140 S. Dupont Highway, Camden, County of Kent, DE, 19934, United States		
Beyond Limits, Inc.	Preference Series B (100.00%); Preference Series C (20.07%)	50.54
251, Little Falls Drive, Wilmington, DE, 19808, United States		
TAI 1 LLC	Membership Interest	100.00
2710 Gateway Oaks Drive, Suite 150N Sacramento, CA, 95833-3505, United States		
East Travel Plaza LLC	Membership Interest	40.00
Petro Travel Plaza LLC	Membership Interest	40.00
2711 Centerville Road, Suite 400, Wilmington, DE, 19808, United States		
Energy Emerging Investments, LLC	Membership Interest	50.00
3410 Belle Chase Way, Suite 600, Lansing, MI, 48911, United States		
Sunshine Gas Producers, LLC	Membership Interest	50.00
3500 DuPont Highway, Dover, County of Kent, DE, 19901, United States		
RepairPal, Inc.	Preference Series A2 (30.77%); Preference Series B (71.32%); Preference Series C (34.73%)	34.11
4001 Kennet Pike, Suite 302, Wilmington, DE, 19807, United States		
AEP I HoldCo LLC	Membership Interest	24.30
501 Westlake Park Blvd, Houston, TX 77079, United States		
HPP SD Holdings, LLC	Membership Interest	20.70
8 the Green, Ste A, Dover, Kent, DE, 19901, United States		
Lutum Technology LLC	Series A Common Units	20.00
815, 14th Street SW, Suite A100, Loveland, CO 80537, United States		
Lightning eMotors, Inc.	Ordinary	25.51
850 New Burton Road, Suite 201, Dover, Delaware, 19902, United States		
SeaPort Midstream Partners, LLC	Membership Interest	49.00
920 North King Street, 2nd Floor, Wilmington DE 19801, United States		
Atlantic 1 Holdings LLC	Membership Interest	39.00
Atlantic 2/3 Holdings LLC	Membership Interest	42.50

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14. Related undertakings of the group – continued

9900 Spectrum Drive, Austin, TX 78717, United States		
Austin Elements Inc.	Ordinary	30.00
c/o Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808, United States		
Apis Innovation Inc.	Ordinary	37.43
Astro Solar Construction Holdings, LLC	Membership Interest	49.97
Astro Solar Construction, LLC	Membership Interest	49.97
Astro Solar Holdings 1, LLC	Membership Interest	49.97
Astro Solar Holdings 2, LLC	Membership Interest	49.97
Astro Solar Manager, LLC	Membership Interest	49.97
Astro Solar Transfer Holdings, LLC	Membership Interest	49.97
Atlas RNG LLC	Membership Interest	50.00
Bass Solar Class B, LLC	Membership Interest	49.97
Bass Solar Construction, LLC	Membership Interest	49.97
Bass Solar Holdings 1, LLC	Membership Interest	49.97
Bass Solar Holdings 2, LLC	Membership Interest	49.97
Bass Solar Holdings, LLC	Class B Membership Interest	49.97
Beacon Wind Holdings LLC	Membership Interest	50.00
Beacon Wind LLC	Membership Interest	50.00
Bellflower Solar 1, LLC	Membership Interest	49.97
Big Elk Solar, LLC	Membership Interest	49.97
Bighorn Solar 1, LLC	Membership Interest	49.97
Bighorn Solar Class B, LLC	Membership Interest	49.97
Bighorn Solar Construction, LLC	Membership Interest	49.97
Bighorn Solar Holdings 1, LLC	Membership Interest	49.97
Bighorn Solar Holdings 2, LLC	Membership Interest	49.97
Bighorn Solar Holdings, LLC	Class B Membership Interest	49.97
Birch Solar 1, LLC	Membership Interest	49.97
Black Bear Alabama Solar 1, LLC	Membership Interest	25.73
Black Bear Alabama Solar Holdings 1, LLC	Membership Interest	49.97
Black Bear Alabama Solar Holdings 2, LLC	Membership Interest	49.97
Black Bear Alabama Solar Holdings, LLC	Membership Interest	25.73
Black Bear Alabama Solar Land Holdings, LLC	Membership Interest	49.97
Black Bear Alabama Solar Manager, LLC	Membership Interest	49.97
Briar Creek Solar 1, LLC	Membership Interest	49.97
Canal Road Solar, LLC	Membership Interest	49.97
Cardinal Solar Class B, LLC	Membership Interest	49.97
Cardinal Solar Construction Holdings, LLC	Membership Interest	49.97
Cardinal Solar Construction, LLC	Membership Interest	49.97
Cardinal Solar Holdings 1, LLC	Membership Interest	49.97
Cardinal Solar Holdings 2, LLC	Membership Interest	49.97
Cardinal Solar Holdings, LLC	Membership Interest	49.97
Champion Solar 1, LLC	Membership Interest	49.97
Chester Solar Energy, LLC	Membership Interest	49.97
Concord Solar Class B, LLC	Membership Interest	49.97
Concord Solar Construction Holdings, LLC	Membership Interest	49.97
Concord Solar Construction, LLC	Membership Interest	49.97
Concord Solar Holdings 1, LLC	Membership Interest	49.97
Concord Solar Holdings 2, LLC	Membership Interest	49.97
Concord Solar Holdings, LLC	Membership Interest	49.97
Continental Divide Solar I, LLC	Membership Interest	49.97
Continental Divide Solar II, LLC	Membership Interest	49.97
Continental Divide Solar Land Holdings, LLC	Membership Interest	49.97
Cottontail Solar 1, LLC	Membership Interest	49.97
Cottontail Solar 2, LLC	Membership Interest	49.97
Cottontail Solar 3, LLC	Membership Interest	49.97
Cottontail Solar 4, LLC	Membership Interest	49.97
Cottontail Solar 5, LLC	Membership Interest	49.97
Cottontail Solar 6, LLC	Membership Interest	49.97

14. Related undertakings of the group – continued

Cottontail Solar 7, LLC	Membership Interest	49.97
Cottontail Solar 8, LLC	Membership Interest	49.97
Cottontail Solar 9, LLC	Membership Interest	49.97
Cottontail Solar Class B, LLC	Membership Interest	49.97
Cottontail Solar Construction Holdings, LLC	Membership Interest	49.97
Cottontail Solar Construction, LLC	Membership Interest	49.97
Cottontail Solar Holdings 1, LLC	Membership Interest	49.97
Cottontail Solar Holdings 2, LLC	Membership Interest	49.97
Cottontail Solar Holdings, LLC	Class B Membership Interest	49.97
Crawfish Solar Class B, LLC	Membership Interest	49.97
Crawfish Solar Construction Holdings, LLC	Membership Interest	49.97
Crawfish Solar Construction, LLC	Membership Interest	49.97
Crawfish Solar Holdings 1, LLC	Membership Interest	49.97
Crawfish Solar Holdings 2, LLC	Membership Interest	49.97
Crawfish Solar Holdings, LLC	Class B Membership Interest	49.97
Crawford Solar, LLC	Membership Interest	49.97
Crossvine Solar 1, LLC	Membership Interest	49.97
Crossvine Solar Holdings, LLC	Membership Interest	49.97
Driver Solar Holdings, LLC	Membership Interest	49.97
Driver Solar, LLC	Membership Interest	49.97
Eden RNG LLC	Membership Interest	50.00
Elk Hill Solar 1 Holdings, LLC	Membership Interest	49.97
Elk Hill Solar 1 Storage, LLC	Membership Interest	49.97
Elk Hill Solar 1, LLC	Membership Interest	49.97
Elk Hill Solar 2 Holdings, LLC	Membership Interest	49.97
Elk Hill Solar 2, LLC	Membership Interest	49.97
Elm Branch Solar 1, LLC	Membership Interest	49.97
Empire Offshore Wind Holdings LLC	Membership Interest	50.00
Empire Offshore Wind LLC	Membership Interest	50.00
Endurance Solar Holdings 1, LLC	Membership Interest	49.97
Endurance Solar Holdings 2, LLC	Membership Interest	49.97
Endurance Solar Holdings, LLC	Membership Interest	49.97
Endurance Solar Investor 1, LLC	Membership Interest	49.97
Endurance Solar Investor 2, LLC	Membership Interest	49.97
Endurance Solar Manager, LLC	Membership Interest	49.97
Endurance Solar Transfer Holdings, LLC	Membership Interest	49.97
Falcon Lake Storage, LLC	Membership Interest	49.97
FreeWire Technologies, Inc.	Membership Interest	22.90
Glade CD Solar Holdings, LLC	Membership Interest	49.97
Glade Solar Class B, LLC	Membership Interest	49.97
Glade Solar Construction Holdings, LLC	Membership Interest	49.97
Glade Solar Construction, LLC	Membership Interest	49.97
Glade Solar Holdings 1, LLC	Membership Interest	49.97
Glade Solar Holdings 2, LLC	Membership Interest	49.97
Glade Solar Holdings, LLC	Class B Membership Interest	49.97
Glade Solar Land Holdings, LLC	Membership Interest	49.97
Granite Hill Solar Land Holdings, LLC	Membership Interest	49.97
Granite Hill Solar, LLC	Membership Interest	49.97
Green Meadows Operations LLC	Membership Interest	50.00
Green Meadows RNG LLC	Membership Interest	50.00
Happy Solar 1, LLC	Membership Interest	49.97
Honeysuckle Solar, LLC	Membership Interest	49.97
Impact Solar 1, LLC	Membership Interest	49.97
Impact Solar Class B, LLC	Membership Interest	49.97
Impact Solar Construction, LLC	Membership Interest	49.97
Impact Solar Holdings 1, LLC	Membership Interest	49.97
Impact Solar Holdings 2, LLC	Membership Interest	49.97

The parent company financial statements of BP p.l.c. on pages 275-334 do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

14. Related undertakings of the group – continued

Impact Solar Holdings, LLC	Class B Membership Interest	49.97
Inverness Solar, LLC	Membership Interest	49.97
Janus RNG LLC	Membership Interest	50.00
Johnson Corner Solar I, LLC	Membership Interest	49.97
Jones City Solar II, LLC	Membership Interest	49.97
Jones City Solar, LLC	Membership Interest	49.97
Kirkham Solar Farms I, LLC	Membership Interest	49.97
Kirkham Solar Farms II, LLC	Membership Interest	49.97
Lightsource Beacon 2, LLC	Membership Interest	49.97
Lightsource Beacon 3, LLC	Membership Interest	49.97
Lightsource Beacon Holdings, LLC	Membership Interest	49.97
Lightsource Beacon, LLC	Membership Interest	49.97
Lightsource Osprey Holdings A, LLC	Membership Interest	49.97
Lightsource Osprey Holdings B, LLC	Membership Interest	49.97
Lightsource Renewable Energy Asset Holdings 1, LLC	Membership Interest	49.97
Lightsource Renewable Energy Asset Management Holdings, LLC	Membership Interest	49.97
Lightsource Renewable Energy Asset Management, LLC	Membership Interest	49.97
Lightsource Renewable Energy Assets Holdings, LLC	Membership Interest	49.97
Lightsource Renewable Energy Austin Holdings, LLC	Membership Interest	49.97
Lightsource Renewable Energy Development, LLC	Membership Interest	49.97
Lightsource Renewable Energy Management, LLC	Membership Interest	49.97
Lightsource Renewable Energy Operations, LLC	Membership Interest	49.97
Lightsource Renewable Energy Services Holdings, LLC	Membership Interest	49.97
Lightsource Renewable Energy Services, Inc.	Ordinary	49.97
Lightsource Renewable Energy Trading, LLC	Membership Interest	49.97
Lightsource Renewable Energy US, LLC	Membership Interest	49.97
LSBP NE Development, LLC	Membership Interest	49.97
Maverick Solar Class B, LLC	Membership Interest	49.97
Maverick Solar Construction, LLC	Membership Interest	49.97
Maverick Solar Holdings 1, LLC	Membership Interest	49.97
Maverick Solar Holdings 2, LLC	Membership Interest	49.97
Maverick Solar Holdings, LLC	Class B Membership Interest	49.97
Mayapple Solar Holdings 1, LLC	Membership Interest	49.97
Mayapple Solar Holdings, LLC	Membership Interest	49.97
Mayapple Solar, LLC	Membership Interest	49.97
Merrillville Solar Holdings, LLC	Membership Interest	49.97
Merrillville Solar Land Holdings, LLC	Membership Interest	49.97
Merrillville Solar, LLC	Membership Interest	49.97
Mound Creek Storage, LLC	Membership Interest	49.97
Mountain Daisy Solar, LLC	Membership Interest	49.97
Mountain Holly Solar, LLC	Membership Interest	49.97
Mowata Solar, LLC	Membership Interest	49.97
Nikola-TA HRS 1, LLC	Membership Interest	50.00
Osprey Solar Holdings A, LLC	Membership Interest	49.97
Osprey Solar Holdings B, LLC	Membership Interest	49.97
Oxbow Solar Farm 1, LLC	Membership Interest	49.97
Oxbow Solar Land Holdings, LLC	Membership Interest	49.97
Pan RNG LLC	Membership Interest	50.00
Paper Shell Solar 1, LLC	Membership Interest	49.97
Peony Solar 1, LLC	Membership Interest	49.97
Petro Travel Plaza Holdings LLC	Membership Interest	40.00
Pikes Peak Energy Storage Holdings, LLC	Membership Interest	49.97
Pikes Peak Energy Storage, LLC	Membership Interest	49.97
Pine Burr Solar 1, LLC	Membership Interest	49.97
Pine Cone Solar 2, LLC	Membership Interest	49.97
Pine Cone Solar 3, LLC	Membership Interest	49.97
Pine Cone Solar, LLC	Membership Interest	49.97
Poplar Solar 1, LLC	Membership Interest	49.97

14. Related undertakings of the group – continued

Prairie Ronde Solar Class B, LLC	Membership Interest	49.97
Prairie Ronde Solar Farm, LLC	Membership Interest	49.97
Prairie Ronde Solar Holdings, LLC	Membership Interest	49.97
Renewable Energy Shared Assets LLC	Membership Interest	50.00
Roscoe Solar, LLC	Membership Interest	49.97
Saturn Renewables LLC	Partnership interest	50.00
Shorebird Solar, LLC	Membership Interest	49.97
Snowdrop Solar, LLC	Membership Interest	49.97
Starr Solar Ranch 1, LLC	Membership Interest	49.97
Starr Solar Ranch LLC	Membership Interest	49.97
Sun Mountain Solar 1, LLC	Membership Interest	49.97
Sycamore Trail Land Holdings, LLC	Membership Interest	49.97
Sycamore Trail Solar, LLC	Membership Interest	49.97
Titan Partners LLC	Membership Interest	25.00
Trinity River Solar 1, LLC	Membership Interest	49.97
TX Gulf Solar 1, LLC	Membership Interest	49.97
White Trillium Solar, LLC	Membership Interest	49.97
Whitetail Solar 1, LLC	Membership Interest	49.97
Whitetail Solar 2, LLC	Membership Interest	49.97
Whitetail Solar 3, LLC	Membership Interest	49.97
Whitetail Solar 6, LLC	Membership Interest	49.97
Whitetail Solar Land Holdings, LLC	Membership Interest	49.97
Wildflower Solar I, LLC	Membership Interest	49.97
Wildflower Solar Land Holdings, LLC	Membership Interest	49.97
Corporation Trust Center, 1209 Orange Street, Wilmington, DE, 19801, United States		
Advanced Ionics, Inc.	Series A-1 (40.90%)	15.53
Ash Grove Renewable Energy, LLC	Membership Interest	50.00
Auwahi Holdings, LLC	Membership Interest	50.00
Auwahi Wind Energy LLC	Membership Interest	50.00
Caesar Oil Pipeline Company, LLC	Membership Interest	56.00
Calysta, Inc.	Preference Series D-1	36.36
CE BP Renew Co, LLC	Membership Interest	50.00
CE bp Renew Dynamic Co I, LLC	Membership Interest	40.00
CE bp Renew Dynamic Co II, LLC	Membership Interest	50.00
CE bp Renew Dynamic Co III, LLC	Membership Interest	40.00
Cedar Creek II Holdings LLC	Membership Interest	50.00
Chicap Pipe Line Company	Ordinary	28.65
Cleopatra Gas Gathering Company, LLC	Membership Interest	53.00
Drumgoon Digester Renewable Energy, LLC	Membership Interest	40.00
East Valley Development, LLC	Membership Interest	50.00
Endymion Oil Pipeline Company, LLC	Membership Interest	65.00
Fowler II Holdings LLC	Membership Interest	50.00
Fowler Ridge II Wind Farm LLC	Membership Interest	50.00
Goshen Phase II LLC	Membership Interest	50.00
KM Phoenix Holdings LLC	Membership Interest	25.00
Mars Oil Pipeline Company LLC	Partnership interest	28.50
Marshall Ridge Renewable Energy, LLC	Membership Interest	40.00
Mehoopany Wind Energy LLC	Membership Interest	50.00
Mehoopany Wind Holdings LLC	Membership Interest	50.00
Midwest Alliance For Clean Hydrogen, LLC	Membership Interest	26.20
Olympic Pipe Line Company LLC	Membership Interest	35.70
PartsTech, Inc.	Preference Series A (65.15%); Preference Series B (17.84%)	40.13
Proteus Oil Pipeline Company, LLC	Membership Interest	65.00
Tri-Cross Renewable Energy, LLC	Membership Interest	50.00
Ursa Major Marine Holdings, LLC	Membership Interest	33.33
Ursa Oil Pipeline Company LLC	Membership Interest	22.69
Van Winkle Digester Renewable Energy, LLC	Membership Interest	50.00
VF Renewable Energy, LLC	Membership Interest	40.00

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14. Related undertakings of the group – continued

Uruguay		
Avenida Luis Alberto de Herrera 1248, Oficina 1901, Montevideo, Uruguay		
Axuy Energy Holdings S.R.L.	Membership Interest	50.00
Axuy Energy Investments S.R.L.	Membership Interest	50.00
Colonia 810, Oficina 403, Montevideo, Uruguay		
Baplor S.A.	Ordinary	50.00
FERMULY S.A.	Ordinary	50.00
Gemalsur S.A.	Ordinary	50.00
Pan American Energy Holdings S.A.	Ordinary	50.00
Pan American Energy Uruguay S.A.	Ordinary	50.00
Dr. Luis Bonavita 1294, Oficina 2302, Montevideo, Uruguay		
BP Bunge Montevideo S.A.	Ordinary	50.00
La Cumparsita 1373, piso 4°, Montevideo, Uruguay		
Dinarel S.A.	Ordinary	20.00
Luis A de Herrera 1248, Torre II, Piso 22 (Edificio World Trade Center), Montevideo, Uruguay		
Axion Comercializacion De Combustibles Y Lubricantes S.A.	Ordinary	50.00
Zimbabwe		
Block 1 Tendeseka Office Park, Samora Machel Av/Renfrew Road, Harare, Zimbabwe		
Central African Petroleum Refineries (Pvt) Ltd	Membership Interest	20.75

[a] 1% interest held directly by BP p.l.c.
[b] 0.01% interest held directly by BP p.l.c.
[c] 99% interest held directly by BP p.l.c.
[d] 100% interest held directly by BP p.l.c.
[e] 50% interest held directly by BP p.l.c.
[f] 15% interest held directly by BP p.l.c.
[g] 5% interest held directly by BP p.l.c.

Additional disclosures

★ See glossary on **page 373**

Capital expenditure★

			$ million
	2023	2022	2021
Capital expenditure			
Organic capital expenditure★	**14,998**	12,470	11,779
Inorganic capital expenditure[abc]★	**1,255**	3,860	1,069
	16,253	16,330	12,848
Capital expenditure by segment			
gas & low carbon energy[c]	**4,281**	4,251	4,741
oil production & operations	**6,278**	5,278	4,838
customers & products[ab]	**5,253**	6,252	2,872
other businesses & corporate	**441**	549	397
	16,253	16,330	12,848
Capital expenditure by geographical area			
US	**8,105**	8,656	4,858
Non-US	**8,148**	7,674	7,990
	16,253	16,330	12,848

[a] 2023 includes $1.1 billion in respect of the TravelCenters of America acquisition.
[b] 2022 includes $3,030 million in respect of the Archaea Energy acquisition.
[c] 2021 includes the final payment of $712 million in respect of the strategic partnership with Equinor.

Adjusting items

Adjusting items are items that bp discloses separately because it considers such disclosures to be meaningful and relevant to investors. They are items that management considers to be important to period-on-period analysis of the group's results and are disclosed in order to enable investors to better understand and evaluate the group's reported financial performance. An analysis of adjusting items is shown in the table below.

			$ million
	2023	2022	2021
gas & low carbon energy			
Gain on sale of businesses and fixed assets[a]	**19**	45	1,034
Net impairment and losses on sale of businesses and fixed assets[a]	**(2,221)**	588	1,503
Environmental and other provisions	**—**	—	—
Restructuring, integration and rationalization costs[b]	**—**	8	(33)
Fair value accounting effects[cd] ★	**8,859**	(1,811)	(7,662)
Other[e]	**(1,299)**	(197)	(237)
	5,358	(1,367)	(5,395)
oil production & operations			
Gain on sale of businesses and fixed assets[a]	**297**	3,446	869
Net impairment and losses on sale of businesses and fixed assets[a]	**(1,819)**	(4,508)	776
Environmental and other provisions[f]	**54**	518	(1,144)
Restructuring, integration and rationalization costs[b]	**(1)**	(11)	(92)
Fair value accounting effects	**—**	—	—
Other[g]	**(121)**	52	(200)
	(1,590)	(503)	209
customers & products			
Gain on sale of businesses and fixed assets[a]	**44**	374	(52)
Net impairment and losses on sale of businesses and fixed assets[a]	**(1,757)**	(1,983)	(1,097)
Environmental and other provisions	**(97)**	(101)	(111)
Restructuring, integration and rationalization costs[b]	**—**	18	(11)
Fair value accounting effects[d]	**(86)**	(309)	436
Other[h]	**(287)**	81	(209)
	(2,183)	(1,920)	(1,044)
other businesses & corporate			
Gain on sale of businesses and fixed assets[a]	**1**	1	—
Net impairment and losses on sale of businesses and fixed assets[a]	**(41)**	(17)	(59)
Environmental and other provisions[i]	**(604)**	(92)	(281)
Restructuring, integration and rationalization costs[b]	**38**	19	(113)
Fair value accounting effects[d]	**630**	(1,381)	(849)
Rosneft[j]	**—**	(24,033)	(291)
Gulf of Mexico oil spill	**(57)**	(84)	(70)
Other	**(4)**	21	(22)
	(37)	(25,566)	(1,685)
Total before interest and taxation	**1,548**	(29,356)	(7,915)
Finance costs[k]	**(405)**	(425)	(782)
Total before taxation	**1,143**	(29,781)	(8,697)
Taxation on adjusting items[l]	**972**	456	621
Taxation - tax rate change effect of UK energy profits levy[m]	**232**	(1,834)	—
Total after taxation[n]	**2,347**	(31,159)	(8,076)

[a] See Financial statements – Note 4 for further information.

[b] Restructuring charges are classified as adjusting items where they relate to an announced major group restructuring. A major group restructuring is a restructuring programme affecting more than one of the group's operating segments that is expected to result in charges of more than $1 billion over a defined period. 2022 includes release of provisions for the reinvent bp restructuring costs. 2021 includes recognized provisions for the reinvent bp restructuring costs that were formalized in 2020.

[c] Under IFRS bp marks-to-market the value of the hedges used to risk-manage LNG contracts, but not the contracts themselves, resulting in a mismatch in accounting treatment. The fair value accounting effect includes the change in value of LNG contracts that are being risk managed, and the underlying result reflects how bp risk-manages its LNG contracts.

[d] For further information, including the nature of fair value accounting effects reported in each segment, see page 377.

[e] 2023 includes $1,140 million of impairment charges recognized through equity-accounted earnings relating to our US offshore wind projects.

[f] 2022 includes a provision reversal relating to the change in discount rate on retained decommissioning provisions. 2021 includes adjustments relating to the change in discount rate on retained decommissioning provisions and the recognition of a decommissioning provision in relation to certain assets previously sold to a third party where the decommissioning obligation transferred may revert to bp due to the financial condition of the current owner.

[g] 2021 includes a $415 million charge relating to a remeasurement of deferred tax balances in our equity-accounted entity in Argentina following income tax rate changes partially offset by impairment reversals in equity-accounted entities.

[h] 2021 includes amounts arising in relation to the amendment of the timing of recognition of certain customer incentives in our customers business.

[i] 2023 primarily relates to charges related to the control, abatement, clean-up or elimination of environmental pollution and legal settlements. 2022 and 2021 primarily reflect charges due to the annual update of environmental provisions, including asbestos-related provisions for past operations, together with updates of non-Gulf of Mexico oil spill related legal provisions.

[j] For more information see Financial statements – Note 1 Significant accounting policies, judgements, estimates and assumptions – Investment in Rosneft and Note 17 – Investments in associates.

[k] Includes the unwinding of discounting effects relating to Gulf of Mexico oil spill payables, the income statement impact associated with the buyback of finance debt (see Financial statements – Note 26 for further information) and temporary valuation differences associated with the group's interest rate and foreign currency exchange risk management of finance debt.

[l] Includes certain foreign exchange effects on tax as adjusting items. These amounts represent the impact of: (i) foreign exchange on deferred tax balances arising from the conversion of local currency tax base amounts into functional currency; and (ii) taxable gains and losses from the retranslation of US dollar-denominated intra-group loans to local currency.

[m] 2023 includes a revision to the deferred tax impact of the introduction of the UK Energy Profits Levy (EPL) on temporary differences existing at 31 December 2022 that are expected to unwind over the period 1 January 2023 to 31 March 2028. 2022 includes the deferred tax impact of the introduction of the EPL. The EPL increases the headline rate of tax to 75% and applies to taxable profits from bp's North Sea business made from 1 January 2023 until 31 March 2028. On 6 March 2024 the UK government announced an extension of the EPL to 31 March 2029. This has not yet been substantively enacted.

[n] 2023 and 2022 include a $146-million charge and a $505-million charge respectively for the EU Solidarity Contribution.

★ See glossary on **page 373**

Non-IFRS information on fair value accounting effects

The impacts of fair value accounting effects, relative to management's internal measure of performance, are set out below. Further information on fair value accounting effects is provided on page 377.

			$ million
	2023	2022	2021
gas & low carbon energy			
Unrecognized (gains) losses brought forward from previous period	**(9,960)**	(8,149)	(485)
Favourable (adverse) impact relative to management's measure of performance	**8,859**	(1,811)	(7,662)
Exchange translation gains (losses) on fair value accounting effects	**(24)**	–	(2)
Unrecognized (gains) losses carried forward	**(1,125)**	(9,960)	(8,149)
customers & products			
Unrecognized (gains) losses brought forward from previous period	**79**	391	(45)
Favourable (adverse) impact relative to management's measure of performance	**(86)**	(309)	436
Exchange translation gains (losses) on fair value accounting effects	**(10)**	(3)	–
Unrecognized (gains) losses carried forward	**(17)**	79	391
other businesses & corporate			
Unrecognized (gains) losses brought forward from previous period	**(1,555)**	(174)	675
Favourable (adverse) impact relative to management's measure of performance[a]	**630**	(1,381)	(849)
Unrecognized (gains) losses carried forward	**(925)**	(1,555)	(174)
Group			
Unrecognized (gains) losses brought forward from previous period	**(11,436)**	(7,932)	145
Favourable (adverse) impact relative to management's measure of performance	**9,403**	(3,501)	(8,075)
Exchange translation gains (losses) on fair value accounting effects	**(34)**	(3)	(2)
Unrecognized (gains) losses carried forward	**(2,067)**	(11,436)	(7,932)
Favourable (adverse) impact relative to management's measure of performance – by region			
gas & low carbon energy			
US	**900**	(1,140)	(92)
Non-US	**7,959**	(671)	(7,570)
	8,859	(1,811)	(7,662)
customers & products			
US	**(18)**	3	105
Non-US	**(68)**	(312)	331
	(86)	(309)	436
other businesses & corporate			
US	**–**	–	–
Non-US	**630**	(1,381)	(849)
	630	(1,381)	(849)
	9,403	(3,501)	(8,075)
Taxation credit (charge)	**(915)**	434	862
	8,488	(3,067)	(7,213)

[a] Includes changes in the fair value of derivatives entered into by the group to manage currency exposure and interest rate risks relating to hybrid bonds to their respective first call periods. For further information see page 377.

Net debt including leases

Net debt including leases★ is shown in the table below.

		$ million
At 31 December	2023	2022
Net debt[a]★	**20,912**	21,422
Lease liabilities	**11,121**	8,549
Net partner (receivable) payable for leases entered into on behalf of joint operations★	**(131)**	19
Net debt including leases	**31,902**	29,990
Total equity	**85,493**	82,990
Gearing including leases★	**27.2%**	26.5%

[a] See Financial statements – Note 27 for a reconciliation of net debt to finance debt, which is the nearest equivalent measure to net debt on an IFRS basis.

Surplus cash flow★ components

			$ million
	2023	2022	2021
Sources:			
Net cash provided by operating activities	**32,039**	40,932	23,612
Cash provided from investing activities	**1,381**	2,617	7,154
Other[a]	**324**	360	589
	33,744	43,909	31,355
Uses:			
Lease liability payments	**(2,560)**	(1,961)	(2,082)
Payments on perpetual hybrid bonds	**(1,008)**	(708)	(538)
Dividends paid – bp shareholders	**(4,809)**	(4,358)	(4,304)
– non-controlling interests	**(403)**	(294)	(311)
Total capital expenditure★	**(16,253)**	(16,330)	(12,848)
Net repurchase of shares relating to employee share schemes	**(675)**	(500)	(500)
Payments relating to transactions involving non-controlling interests	**(187)**	(9)	(560)
Currency translation differences relating to cash and cash equivalents	**27**	(684)	(269)
	(25,868)	(24,844)	(21,412)

[a] Other includes adjustments for net operating cash received or paid which is held on behalf of third parties for medium-term deferred payment and prior periods have been adjusted accordingly. 2023 includes $517 million of proceeds from the sale of a 49% interest in a controlled affiliate holding certain midstream assets onshore US. Other proceeds for 2022 include $573 million of proceeds from the disposal of a loan note related to the Alaska divestment. The cash was received in the fourth quarter 2021, was reported as a financing cash flow and was not included in other proceeds at the time due to potential recourse from the counterparty. The proceeds were recognized as the potential recourse reduces and by end second quarter 2022 all were recognized.

Liquidity and capital resources

Financial framework

bp has a resilient financial framework that, taken together with our strategy, creates a compelling investor proposition offering committed distributions, profitable growth and sustainable value. The framework comprises a coherent approach to capital allocation, a resilient balance sheet, a disciplined approach to investment allocation and a relentless focus on executing bp's business plan.

bp's approach to capital allocation leads to a clear set of priorities – funding our resilient dividend as the first priority, maintaining a strong investment grade credit rating, disciplined investment in our transition growth★ engines to advance our energy transition strategy and investment in oil, gas, refining and other businesses, and then returning surplus cash flow★ as share buybacks. In a period of low prices, the group has the flexibility to reduce cash costs and to reduce or defer capital investment, as appropriate.

Our shareholder distribution policy reflects these priorities for the uses of cash alongside an ongoing consideration of factors, including changes in the environment, the underlying performance of the business, the outlook for the group financial framework, and other market factors which may vary quarter to quarter.

Net debt★ at 31 December 2023 was $20.9 billion and is expected to reduce in line with the growth in operating cash flow★. As at 31 December 2023 our target of $25 billion of divestment and other proceeds between the second half of 2020 and 2025 was underpinned by agreed or completed transactions of around $18.5 billion with $17.8 billion of proceeds received.

We expect operating cash flow to cover capital expenditure★ and the dividend. Capital expenditure in 2023 was $16.3 billion, including $1.3 billion of inorganic capital expenditure★. bp expects capital expenditure of around $16 billion through 2024 and 2025 and expects a range of $14-18 billion per annum through 2030 including inorganic expenditure. bp's cash balancing point is expected to average around $40 per barrel Brent (assuming an average refining marker margin of around $11 per barrel and Henry Hub gas price at $3 per mmBtu) in 2021 real terms.

In 2023, the return on average capital employed★ was 18.1%[a] at an average of $83 per barrel. The return on average capital employed is targeted to be over 18% by 2025 at $70 per barrel in 2021 real terms, and assuming bp planning assumptions, as we continue to execute our strategy. This is supported by an expected growth on adjusted EBIDA per share compound annual growth rate★ from the second half 2019/first half 2020[b] to 2025 and subject to the same price and planning assumptions.

[a] Nearest equivalent IFRS measures of numerator and denominator are profit for the year attributable to bp shareholders and total equity respectively. Profit for the year attributable to bp shareholders divided by total equity at the end of 2023 17.8%.
[b] Adjusted to exclude Rosneft.

Dividends and other distributions to shareholders

The dividend is determined in US dollars, the economic currency of bp, and the dividend level is reviewed by the board each quarter. The quarterly dividend was increased from 6.610 to 7.270 cents per ordinary share per quarter in the second quarter of 2023.

The total dividend distributed to bp shareholders in 2023 was $4.8 billion (2022 $4.4 billion). This dividend was all paid in cash as shareholders no longer have the option to receive a scrip dividend in place of receiving cash.

Included in the distribution policy is a commitment that, subject to maintaining a strong investment grade credit rating, at least 80% of surplus cash flow on a point forward basis will be distributed to shareholders through share buybacks. In 2023 bp executed $7.9 billion of share buybacks (2022 $10.0 billion), including fees and stamp duty. Since 1 January 2024 an additional $0.9 billion shares have been repurchased up to 16 February 2024, including fees and stamp duty. Based on bp's current forecasts, at around $60 per barrel Brent and subject to the board's discretion each quarter, bp expects to have capacity for an annual increase in the dividend per ordinary share of around 4%. Based on current market conditions bp plans share buybacks of at least $14 billion through 2025. In setting the dividend and share buybacks each quarter, the board will continue to take into account factors including the cumulative level of and outlook for surplus cash flow, the cash balance point★ and the maintenance of a strong investment grade credit rating.

Financing the group's activities

The group's principal commodities, oil and gas, are priced internationally in US dollars. Group policy has generally been to minimize economic exposure to currency movements by financing operations with US dollar debt. Where debt and hybrid bonds are issued in other currencies, they are generally swapped back to US dollars using derivative contracts, or else hedged by maintaining offsetting cash positions in the same currency. Cash balances of the group are mainly held in US dollars or swapped to US dollars and holdings are well diversified to reduce concentration risk. The group is not, therefore, exposed to significant currency risk regarding its cash or borrowings. Also see Risk factors on page 77 for further information on risks associated with prices and markets and Financial statements – Note 29.

The group's finance debt at 31 December 2023 amounted to $52.0 billion (2022 $46.9 billion). Of the total finance debt, $3.3 billion is classified as short term at the end of 2023 (2022 $3.2 billion). See Financial statements – Note 26 for more information on the short-term balance. Net debt★ was $20.9 billion at the end of 2023, a decrease of $0.5 billion from the 2022 year-end position of $21.4 billion. BP p.l.c. fully and unconditionally guarantees securities issued by BP Capital Markets p.l.c. and BP Capital Markets America Inc. which are 100%-owned finance subsidiaries of BP p.l.c.

At 31 December 2023 the group held a balance of $13.6 billion (2022 $13.4 billion) issued perpetual subordinated hybrid bonds, of which $1.5 billion (2022 $1.3 billion) were issued to fund one of the group's major projects. As the group has the unconditional right to avoid transfer of cash or another financial asset in relation to these hybrid bonds, which were issued by group subsidiaries, they are classified as equity instruments and reported within non-controlling interest.

The ratio of finance debt to finance debt plus total equity at 31 December 2023 was 37.8% (2022 36.1%). Gearing was 19.7% at the end of 2023 (2022 20.5%). See Financial statements – Note 27 for finance debt, which is the nearest equivalent measure on an IFRS basis, and for further information on net debt.

Cash and cash equivalents of $33.0 billion at 31 December 2023 (2022 $29.2 billion) are included in net debt. We manage our cash position so that the group has adequate cover to respond to potential short-term market liquidity, short-term price environment volatility and expect to maintain a robust cash position.

The group also has an undrawn committed $8 billion credit facility and undrawn committed bank facilities of $4 billion (see Financial statements – Note 29 for more information).

We believe that the group's resilient balance sheet and strong investment grade credit rating will allow the group to meet its known contractual and other obligations in both the short and long term with the group having sufficient working capital, taking into account the amounts of undrawn borrowings facilities, access to capital markets, levels of cash and cash equivalents and its ongoing ability to generate cash through operations. This belief is subject to a degree of uncertainty that can be expected to increase looking out over time and, accordingly, that future outcomes cannot be guaranteed or predicted with certainty.

bp utilizes various arrangements in order to manage its working capital including discounting of receivables and, in the supply and trading business, the active management of supplier payment terms, inventory and collateral.

Standard & Poor's Ratings' long-term credit rating for BP p.l.c. is A- (positive), the Moody's Investors Service rating is A2 (positive) and the Fitch Ratings' long-term credit rating is A+ (stable).

The group's sources of funding, its access to capital markets and maintaining a strong cash position are described in Financial statements – Note 25 and Note 29. Further information on the management of liquidity risk and credit risk, and the maturity profile and fixed/floating rate characteristics of the group's debt are also provided in Financial statements – Note 26 and Note 29.

The information above contains forward-looking statements, which by their nature involve risk and uncertainty because they relate to events and depend on circumstances that will or may occur in the future and are outside the control of bp.

You are urged to read the Cautionary statement on page 361 and Risk factors on page 77, which describe the risks and uncertainties that may cause actual results and developments to differ materially from those expressed or implied by these forward-looking statements.

Off-balance sheet arrangements

At 31 December 2023, the group's share of third-party finance debt of equity-accounted entities was $9.9 billion (2022 $8.8 billion). These amounts are not reflected in the group's debt on the balance sheet. The group has issued third-party guarantees under which amounts outstanding, incremental to amounts recognized on the balance sheet, at 31 December 2023 were $1,655 million (2022 $1,704 million) in respect of liabilities of joint ventures★ and associates★ and $598 million (2022 $680 million) in respect of liabilities of other third parties. Of these amounts, $1,609 million (2022 $1,701 million) of the joint ventures and associates guarantees relate to borrowings and, for other third-party guarantees, $527 million (2022 $557 million) relate to guarantees of borrowings.

Contractual obligations

The following table summarizes the group's capital expenditure commitments for property, plant and equipment at 31 December 2023 and the proportion of that expenditure for which contracts have been placed.

			$ million
	Payments due by period		
Capital expenditure	Less than 1 year	More than 1 year	Total
Committed	12,890	9,648	22,538
of which is contracted	6,962	3,392	10,354

Capital expenditure is considered to be committed when the project has received the appropriate level of internal management approval. For joint operations★, the net bp share is included in the amounts above.

In addition, at 31 December 2023, the group had committed to capital expenditure relating to investments in equity-accounted entities amounting to $3,120 million. Contracts were in place for $1,685 million of this total.

The following table summarizes the group's principal contractual obligations at 31 December 2023, distinguishing between those for which a liability is recognized on the balance sheet and those for which no liability is recognized. See Financial framework above for bp's approach to capital allocation and Financing the group's activities above for bp's plan and ability to generate and obtain cash in the short and long term. Also see Financial statements – Note 23 for more information on provisions, Note 24 on pensions and other post-retirement benefits, Note 26 on borrowings, Note 28 on leases, Note 29 and Note 30 on derivatives and financial instruments.

			$ million
	Payments due by period		
Expected payments by period under contractual obligations	Less than 1 year	More than 1 year	Total
Balance sheet obligations			
Borrowings[a]	5,448	66,161	71,609
Lease liabilities[b]	3,038	10,042	13,080
Decommissioning liabilities[c]	674	23,332	24,006
Environmental liabilities[c]	352	1,626	1,978
Gulf of Mexico oil spill liabilities[d]	1,142	9,520	10,662
Pensions and other post-retirement benefits[e]	577	12,686	13,263
	11,231	123,367	134,598
Off-balance sheet obligations			
Unconditional purchase obligations[f]			
Crude oil and oil products	49,754	8,953	58,707
Natural gas and LNG	13,394	52,974	66,368
Chemicals and other refinery feedstocks	540	78	618
Power	5,075	13,514	18,589
Utilities	58	417	475
Transportation	2,153	14,764	16,917
Use of facilities and services	2,816	20,894	23,710
	73,790	111,594	185,384
Total	85,021	234,961	319,982

a Expected payments include interest totalling $21,298 million (less than 1 year $2,394 million, more than 1 year $18,904 million).
b Expected payments include interest totalling $1,961 million (less than 1 year $380 million, more than 1 year $1,581 million).
c The amounts presented are undiscounted.
d The amounts presented are undiscounted. Gulf of Mexico oil spill liabilities are included in the group balance sheet, on a discounted basis, within other payables. See Financial statements – Note 22 for further information.
e Represents the expected future contributions to funded pension plans and payments by the group for unfunded pension plans and the expected future payments for other post-retirement benefits.
f Represents any agreement to purchase goods or services that is enforceable and legally binding and that specifies all significant terms (such as fixed or minimum purchase volumes, timing of purchase and pricing provisions). Agreements that do not specify all significant terms, or that are not enforceable, are excluded. The amounts shown include arrangements to secure long-term access to supplies of crude oil, natural gas, feedstocks and pipeline systems. In addition, the amounts shown for 2024 include purchase commitments existing at 31 December 2023 entered into principally to meet the group's short-term manufacturing and marketing requirements. The price risk associated with these crude oil, natural gas and power contracts is discussed in Financial statements – Note 29.

Commitments for the delivery of oil and gas

We sell crude oil, natural gas and liquefied natural gas under a variety of contractual obligations. Some of these contracts specify the delivery of fixed and determinable quantities. For the period from 2024 to 2026 worldwide, we are contractually committed to deliver approximately 291 million barrels of oil, 7,586 billion cubic feet of natural gas, and 73 million tonnes of liquefied natural gas. The commitments principally relate to group subsidiaries★ based in Egypt, Singapore, Trinidad and Tobago, the UK and the US. We expect to fulfil these delivery commitments with production from our proved developed reserves and supplies from existing contracts, supplemented by market purchases as necessary.

Oil and gas disclosures for the group

Analysis by region

Our oil and gas operations are set out below by geographical area, with associated significant events for 2023. bp's percentage working interest in oil and gas assets is shown in brackets. Working interest is the cost-bearing ownership share of an oil or gas lease. Consequently, the percentages disclosed for certain agreements do not necessarily reflect the percentage interests in proved reserves, production or revenue.

In addition to exploration, development and production activities, our oil production & operations (OP&O) and gas businesses also include certain midstream and liquefied natural gas (LNG) supply activities. Midstream activities involve the management of crude oil and natural gas pipelines, processing facilities and export terminals, LNG processing facilities and transportation, and our natural gas liquids (NGLs) processing business.

Our upstream LNG activities are located in Abu Dhabi, Angola, Australia, Indonesia, and Trinidad. In 2023 our production was 8.5 million tonnes of LNG from these assets, of which 2 million tonnes were marketed through trading and shipping (T&S), which supplements equity production with merchant third party volumes leading to a global long-term strategic LNG portfolio of 23mtpa. In addition to the long-term equity and merchant supply portfolio, bp has delivered 10mtpa in 2023 of incremental merchant volumes through short and mid-term cargos managed through the T&S LNG business. These supplement the long-term portfolio and allow generation of short-term value when opportunities exist.

The LNG is marketed through contractual rights to access import terminal capacity into the liquid gas markets of Europe, and the UK, and relationships to market directly to end-user customers or trading entities. LNG is supplied to all major LNG demand centres, for example Argentina, Brazil, the Caribbean, China, Croatia, Mediterranean, Iberia and North West Europe, India, Japan, Singapore, South Korea, Taiwan, Thailand, Türkiye and the UK.

Europe

bp is active in offshore oil and gas in the UK and Norway. In 2023 bp's UK production came from two key areas: the Shetland area comprising the Clair and Schiehallion fields; and the central area comprising the Andrew area, Culzean, Vorlich and ETAP fields. In Norway, production was through our equity-accounted 15.9% interest in Aker BP.

- On 28 June the Norwegian Ministry of Petroleum and Energy approved a total of nine plans for development and operation to Aker BP (bp 15.9%), with estimated recoverable reserves to be above 700 million barrels of oil equivalent (mmboe). As per the public announcement the Norwegian government's approval of two of the developments remain subject to legal challenge in Norway.
- In September bp and its co-venturers in the Clair joint venture made the final investment decision to proceed with the construction and operation of the Shetland Crossover Pipeline, reinforcing the gas export network and supporting UK security of supply (bp 45% operator).
- In October the first of two wells for the Murlach oil and gas field in the UK North Sea were spudded, following regulatory approval of the field development plan in September (bp 80% operator).
- In October bp successfully started production from the Seagull oil and gas field in the UK North Sea. This is the first tieback to the ETAP hub in 20 years. The new field is expected to produce around 50 thousand barrels of oil equivalent (mboe) gross per day at peak production.
- During the year an impairment charge of $0.9 billion was recognized in respect of certain assets in the North Sea as a result of changes to the group's oil and gas price and discount rate assumptions and activity phasing.

North America

Our oil and gas activities in North America are located in four areas: deepwater Gulf of Mexico, the Lower 48 states, Canada and Mexico.

bp has around 280 lease blocks in the Gulf of Mexico and operates four production hubs.

- During the year bp has been awarded 36 lease blocks in the Gulf of Mexico lease sale 259, which includes 22 leases that may provide options to further enhance our resource positions at Kaskida and Tiber. bp also moved forward with progression of the Kaskida project, bp's first 20K development in the Paleogene, and progresses on concept selection for bp-operated Tiber development project in the Gulf of Mexico.
- In April bp announced start-up of the Mad Dog Phase 2 Argos platform (bp 60.5% operator). With a gross production capacity of up to 140mboe/d, Argos is bp's fifth platform in the Gulf of Mexico.
- Following a successful appraisal well in the southwest part of the Mad Dog field, bp sanctioned the Argos Southwest Expansion project to tie back into the Argos facility.
- bp was the apparent high bidder on 24 leases in the Gulf of Mexico Lease Sale 261 that took place on 20 December 2023.
- In December partners approved the expansion of the Shell-operated Great White development in the Gulf of Mexico through a phased three-well campaign (bp 33.33%).

bpx energy, bp's onshore oil and gas business in the Lower 48 states, has significant operated and non-operated activities across Louisiana and Texas producing natural gas, oil, NGLs and condensate, with primary focus on developing unconventional resources. It had a 1.6 billion boe proved reserve base at 31 December 2023, predominantly in unconventional reservoirs (tight gas★, shale gas and shale oil). bpx energy's core assets span 0.9 million net developed acres with nearly 2,000 operated gross wells at 31 December 2023. Daily net production averaged 366mboe/d in 2023.

bpx energy continues to operate as a separate business while remaining part of the OP&O segment. With its own governance, systems, and processes, it is structured to increase competitive performance through swift decision making and innovation, while maintaining bp's commitment to safe, reliable and compliant operations.

- MiQ, the non-profit global leader in methane certification, announced that it has independently audited and certified bp as the first energy major in the US to verify the methane intensity of its entire US onshore portfolio of natural gas.
- In August bpx energy successfully brought online 'Bingo', its second central processing facility in the Permian Basin. It is a low-emission, electrified facility that will enable further production growth for bpx energy in the basin (bp 100% operator).
- During the year an impairment charge of $0.8 billion was recognized as a result of changes to the group's oil and gas price and discount rate assumptions and disposal decisions.

bp's onshore US crude oil and product pipelines and related transportation assets were included in the customers & products segment in 2023.

In Canada, bp is focused on pursuing offshore exploration and development opportunities and conducts trading and marketing activities across various energy commodities. We hold exploration and significant discovery licences offshore Newfoundland and Labrador, including an interest in the Equinor-operated Bay du Nord project. bp also holds offshore exploration licences in the Arctic where the moratorium has been extended until 31 December 2028.

In Mexico, bp held interests in two exploration blocks in the Salina Basin with Equinor and Total, Block 1 (bp 33% operator) and Block 3 (bp 33%), and one exploration block in the Sureste Basin, Block 34 (bp 42.5% operator), with Total, QPI Mexico and Hokchi Energy. Hokchi Energy is a subsidiary of Pan American Energy Group (PAEG, see below) in which bp owns 50%. Separate to the above holdings in Mexico, Hokchi Energy also holds an interest in two other blocks.

- Contract termination for Block 3 was executed in April 2023.
- Formal relinquishment of Block 1 and Block 34 licences are still pending regulatory approval.

South America

bp has oil and gas activities in Argentina, Brazil and Trinidad and Tobago and, through PAEG, in Argentina and Bolivia.

In Argentina, bp and Total (operator) are partners on a 50:50 basis in two offshore exploration concessions. Total as the operator issued a relinquishment note to the regulator, which is still pending approval.

In Brazil bp has interests in seven exploration areas across three basins.

- During 2023 bp and Petrobras received an approval from the regulatory authorities for relinquishments submitted for Dois Irmãos, C-M-755, C-M-793, BC-2, BM-POT-16, S-M-1500, and Peroba blocks.

- In May the regulatory authorities approved the final relinquishment of Xerelete (BC-2) operated by Total.
- In June the contract was executed for the Bumerangue block (bp 100%), in the Santos Basin.
- In September the appraisal plan (PAD) for Alto de Cabo Frio Central block (bp 50%), in the southern portion of the Campos Basin, was filed with the regulator and is pending approval.
- In Brazil's second Permanent Production Sharing Offer bid round in December 2023, bp successfully bid on the Tupinambá block, an area of 3,056km^2 located in the Santos Pre-Salt Basin. bp will hold 100% participation interest on the block when the contract is executed later in 2024.

PAEG, a joint venture that is owned by bp (50%) and BC E&P Uruguay S.A. (50%), has activities mainly in Argentina and as noted above Mexico, and is also present in Bolivia.

In Trinidad and Tobago bp holds interests in exploration and production licences and production-sharing contracts (PSCs)★ covering 2.5 million acres offshore of the east and north-east coast. Facilities include 16 offshore platforms and two onshore processing facilities. Production comprises gas and associated liquids.

bp also holds interests in the Atlantic LNG facility. The total gross capacity of the four LNG trains making up the facility is approximately 12 million tonnes per annum. bp's shareholding averages 40% across the three companies which own the LNG trains comprising the LNG facility. During 2023 bp sold gas to trains 2 and 3 and processed gas in train 4. Most of the LNG produced from bp gas supplied to Trains 2, 3 and 4 is sold under long-term contracts.

- Cypre, bp's third subsea gas development in Trinidad and Tobago, is expected to start drilling in 2024 with first gas expected in 2025. The project is expected to have seven wells and be tied back to the Juniper platform.
- The Joe Douglas rig continued drilling in 2023 with Mango and is progressing to Savonette and Angelin. This development will leverage existing infrastructure and contribute to sustained delivery.
- Trinidad Offshore Pipeline Replacement (TOPR) project for a 12-inch liquids pipeline that connects Mahogany B to terminal was safely integrated into the production system in 2023. Additionally, construction of the Ocelot project, which is a 6-inch liquids pipeline connecting Beachfield to terminal, is under way.
- bp was awarded three deepwater blocks off Trinidad's east coast in a bp/Shell partnership (50:50). bp is the operator of Blocks 25a & 25b and Shell is the operator of Block 27. Activity in the coming years will include seismic acquisition and interpretation and exploration wells.
- bp is operator of the Manakin block which was discovered in 1998 and is a cross-border reservoir field with the Venezuelan reservoir, Cocuina. Manakin declared commerciality in January 2018, however cross-border discussions have not progressed due to the impact of US sanctions. In October 2023 the US government eased sanctions on Venezuela's oil sector for six months.
- Since the conclusion of short-term gas supply agreements, the Atlantic Train 1 plant has not been operational. The Atlantic shareholders, bp, Shell and the National Gas Company of Trinidad & Tobago (NGC), agreed to decouple the Train from the rest of the Atlantic facility with a view to decommissioning it. The Train has been made safe and decoupling and decommissioning work scopes are being planned. On 5 December 2023 bp, Shell and NGC agreed and executed the agreements for the restructuring of the ownership and commercial framework of the Atlantic LNG.
- During the year an impairment charge of $0.6 billion was recognized as a result of changes to the group's oil and gas price and discount rate assumptions and activity phasing.

Africa

bp's oil and gas activities in Africa are located in Angola, Egypt, Libya, Mauritania and Senegal.

In Angola, bp and Eni each own 50% interest in the Azule Energy joint venture. Azule Energy is Angola's largest independent equity producer of oil and gas, holding stakes in 20 licences, as well as an interest in the Angola LNG plant.

- During the year, Azule Energy has taken the final investment decision for the Agogo Integrated West Hub Development oil project.
- In August Azule Energy signed a production-sharing agreement (PSA)★ for Block 31/21. The agreement results from the 2021/2022 Limited Offshore Licensing Round and is a significant stride towards advancing exploration in the Lower Congo Basin.
- In December Azule Energy made progress on sustaining resilient hydrocarbon production with four new exploration agreements in blocks adjacent to existing operations (46, 47, 14/23 and 18/15).

In Egypt, bp's investments in the country include West Nile Delta, Atoll and Zohr. Through its joint ventures with Egyptian Natural Gas Holding Company (EGAS), Egyptian General Petroleum Corporation (EGPC), International Egyptian Oil Company (IEOC), Eni, the Pharaonic Petroleum Company (PhPC) and through collaboration with Belayim Petroleum Company (Petrobel), bp and its partners now produce more than 70% of Egypt's total gas supply. In addition, bp owns interest in other exploration projects.

- In October bp secured an exploration block located offshore Egypt as part of the EGAS 2022 International Bid Round. The EGY-MED-E8 (East Port Said) block (bp 33%) is located in the Mediterranean Sea, approximately 50-90km from Post Said city and covering an area of approximately 2,620km^2. In addition to farming into the existing North East Hap'y Offshore Concession the block is currently in the second exploration phase with an exploration well spudded in October 2023.
- On 14 February 2024 bp announced the formation of a new joint venture in Egypt (bp 51%, ADNOC 49%) under which, subject to regulatory approvals, bp will contribute its interests in three non-operated development concessions as well as exploration agreements in Egypt, and ADNOC will make a proportionate cash contribution.

In Libya, bp partners with the Libyan Investment Authority (LIA) and Eni in an exploration and production-sharing agreement (EPSA) to explore acreage in the onshore Ghadames and offshore Sirt basins (bp 42.5%). bp wrote off all balances associated with the Libya EPSA in 2015.

- Eni's acquisition of a 42.5% interest in the bp-operated EPSA in Libya has been ratified by the Libyan authorities effective November 2022, upon which Eni became exploration operator under the EPSA. bp, LIA and Eni continue to work with the Libyan NOC towards finalizing the transfer of operatorship from bp to Eni, recommencement of petroleum operations and completion of the programme of exploration and drilling activities included in the EPSA.

In Mauritania and Senegal, bp retains the exploitation licences in the respective C8 and Saint Louis Offshore Profond blocks pertinent to the Greater Tortue Ahmeyim (GTA) Unit cross-border development. In addition, bp holds a 62% participating interest in the BirAllah gas resource exploration licence.

- The GTA project (bp 56%) continues to progress with phase 1 critical milestones including the completion of the offshore hub terminal construction and sailaway of the gas processing FPSO from China in January 2023. The floating LNG vessel reached its destination in February 2024.
- In February 2023 bp and its partners on the GTA project announced their agreement to evaluate viability of a gravity-based structure (GBS) as the basis for the GTA Phase 2 expansion project.
- In Senegal, we have exited the Cayar Offshore Profond PSA and transferred operatorship of Yakaar-Teranga gas resource to Kosmos Energy. As a result of the exit, an exploration write-off of $0.3 billion was recognized.
- In 2023 an impairment charge of $1.4 billion was recognized in respect of certain assets in the region due to increased future forecast expenditure.

Asia

bp has activities in Abu Dhabi, Azerbaijan, China, India, Indonesia, Iraq, Kuwait and Oman.

In China, we have a 30% equity stake in the Guangdong LNG regasification terminal and trunkline project (GDLNG) with a total storage capacity of 640,000 cubic metres. bp also has 0.6 million tons per annum of regasification capacity at GDLNG for up to 12 years starting from the beginning of 2021. bp imports LNG from our global portfolio and delivers

★ See glossary on **page 373**

regasified natural gas via the terminal to power plant and city gas customers in Guangdong province under long-term sales contracts.

In Azerbaijan, bp operates two PSAs, Azeri-Chirag-Gunashli (ACG) (bp 30.37%) and Shah Deniz (bp 29.99%) and also holds a number of other exploration leases.

- bp and SOCAR signed a protocol to extend the Shafag-Asiman exploration period until the end of June 2024 to allow bp and SOCAR to agree on the terms of any potential follow-on exploration activity.
- Following dry hole results in each of the three prospective areas of the Shallow Water Absheron Peninsula (SWAP) PSA, the contract area was relinquished in December 2022. The joint operating agreement was terminated on 27 December 2023.

Naftiran Intertrade Co Ltd (NICO), a subsidiary of the National Iranian Oil Company, holds a 10% interest in the Shah Deniz joint venture. For information on the exclusion of this project from EU and US trade sanctions, see International trade sanctions on page 357.

bp holds a 30.1% interest in and operates the Baku-Tbilisi-Ceyhan (BTC) oil pipeline. The 1,768-kilometre pipeline transports oil from the ACG oilfield and condensate from the Shah Deniz gas and condensate field in the Caspian Sea, along with other third-party oil, to the eastern Mediterranean port of Ceyhan. The pipeline has a capacity of 1mmboe/d, with an average throughput in 2023 of 626mboe/d.

bp (as operator of Azerbaijan International Operating Company and the Georgian Pipeline Company for the Georgian section) also operates the Western Route Export Pipeline (WREP) that transports ACG oil to Supsa on the Black Sea coast of Georgia, with an average throughput of 3mboe/d in 2023. Exports through the pipeline have been suspended since May 2022 due to a lack of nominations from the shipper group. In current market conditions WREP serves as a contingency export route for ACG crude product. In February 2023 WREP was restarted for two weeks following a temporary suspension of liftings from BTC in the wake of the Turkish earthquake on 6 February 2023.

- The Azeri Central East (ACE) project is the next stage of development of the giant ACG field in the Azerbaijan sector of the Caspian Sea. During the third quarter the ACE platform topsides unit was safely installed in the field and the first pre-drill well was spudded. This is the seventh and most automated platform installed in the giant ACG field with approximately 100mboe/d installed capacity.

bp holds a 29.99% interest in and operates certain parts of the 693-kilometre South Caucasus Pipeline. The pipeline takes gas from the Shah Deniz field in Azerbaijan through Georgia to the Turkish border and has a capacity of 440mboe/d (including expansion), with average throughput in 2023 of 370mboe/d.

bp also holds a 12% interest in the Trans Anatolian Natural Gas Pipeline (TANAP). The pipeline takes Shah Deniz gas from the Turkish border and transports it to Eskisehir in Türkiye and to the Greek border where it connects with the Trans Adriatic Pipeline (TAP). The current capacity of TANAP is 275mboe/d and the average throughput in 2023 was 285mboe/d. bp has a 20% interest in TAP, which takes gas through Greece and Albania into Italy. The current capacity of TAP is 167mboe/d and the total average throughout in 2023 was 191mboe/d. TAP and TANAP throughputs exceeded capacity during 2023 due to high flow tests taking place during the year.

- In 2023 bp and our co-venturers in the Shah Deniz Consortium have secured additional capacity in the SNAM RETE GAS, and TANAP pipelines for 2026-2028 period, which will allow the export of more Shah Deniz gas to Europe.

In Oman, bp operates Block 61, the largest tight gas development in the Middle East (bp 40%). bp also has a 50% interest in Block 77 with Eni (operator) in which an exploration well was spudded in October 2023, scheduled for completion in 2024.

In Abu Dhabi, bp holds a 10% interest in the ADNOC Onshore concession. We also have a 10% equity shareholding in ADNOC LNG and a 10% shareholding in the shipping company NGSCO. ADNOC LNG supplied approximately 5.09 million tonnes of LNG (0.7bcfe/d regasified) in 2023. Our interest in the ADNOC Onshore concession expires at the end of 2054.

- On 28 March bp, together with ADNOC, made a non-binding offer to take NewMed Energy private through an acquisition of the free float and a partial acquisition of Delek's stake, which would result in bp and ADNOC holding 50% of NewMed Energy.

A consortium of Azerbaijan's national oil company SOCAR along with bp and Israel's NewMed was awarded two licence blocks.

In 2016 bp signed an enhanced technical service agreement for south and east Kuwait conventional oilfields, which includes the Burgan field, with Kuwait Oil Company.

In India, we have a participating interest in two oil and gas PSAs (KG D6 33.33% and NEC25 33.33%), and two oil and gas blocks under a revenue sharing contract (KG-UDWHP-2018/1 40% and KG-UDWHP-2022/1 40%), all operated by Reliance Industries Limited (RIL). We also have a 50% stake in India Gas Solutions Private Limited, a joint venture with RIL, for the sourcing and marketing of gas in India.

- On 30 June bp and RIL (operator) announced commencement of production from MJ, the last of three new deepwater developments in the KG D6 block off the east coast of India. With this development, production from the three fields in KG D6 block is expected to account for around one third of India's current domestic gas production and meet approximately 15% of India's gas demand.
- In December 2023 bp and RIL were awarded the ultra deepwater block KG-UDWHP-2022/1 (RIL operator 60%, bp 40%), adjacent to block KG-UDWHP-2018/1, in India's Open Acreage Licensing Policy bid round VIII and both RIL and bp have entered into a revenue sharing contract with the government of India.

In Indonesia, bp holds an interest in the Andaman II PSC exploration block (operated by Harbour Energy), located offshore North Sumatra and in Agung I and Agung II exploration blocks offshore Indonesia. Agung I covers over 6,000km^2 off the coast of Bali and East Java and Agung II spans almost 8,000km^2 offshore South Sulawesi, West Nusa Tenggara and East Java.

In Iraq, bp holds a 49% participating interest in Basra Energy Company Limited (BECL). BECL is an incorporated joint venture (IJV) company owned by bp (49%) and PetroChina (51%) and acts as Rumaila lead contractor since 2022.

Australasia

bp has activities in Australia and Eastern Indonesia.

In Australia bp is one of seven participants in the North West Shelf (NWS) venture, which has been producing LNG, pipeline gas, condensate, LPG and oil since the 1980s. Six partners (including bp) hold an equal 16.67% interest in the gas infrastructure and an equal 15.78% interest in the gas and condensate reserves, with a seventh partner owning the remaining 5.32% of these reserves. The NWS venture is one of the largest LNG export projects in the region, with five LNG trains in operation, and supplies domestic gas into the Western Australia market. bp's net share of the capacity of NWS LNG trains 1-5 is 2.67 million tonnes (15.78% of 16.9mtpa gross) of LNG per year. This will be reduced as the first LNG train is taken offline in 2024. bp is also one of five participants in the Browse LNG venture.

- bp completed the acquisition of Shell's interest in the Browse joint venture in October 2023, which increased bp's interest from 17.33% to 44.33%. Browse is an LNG project operated by Woodside. The Browse joint venture participants continue to work to optimize the current development scheme for Browse which consists of two new built offshore FPSOs connecting back to the NWS Venture's Karratha Gas Plant via a 917km 42-inch pipeline.

bp also has a 50% interest in the WA-541 exploration title in Western Australia's offshore Northern Carnarvon basin. The joint venture, operated by Santos, is working towards the drilling of two commitment wells.

In Papua Barat, Eastern Indonesia, bp operates the Tangguh LNG plant (bp 40.22%). The Tangguh Expansion Project has been completed, adding a third LNG processing train, which has been producing LNG since September 2023, with 3.8 million tonnes of LNG per annum production capacity additional to the existing facility totalling up to 11.4 million tonnes per annum. The Tangguh asset comprises 30 production wells, four offshore platforms, three LNG processing trains, and two LNG loading facilities. Tangguh supplies LNG to customers in Indonesia, Mexico, China, South Korea, Taiwan and Japan through a combination of long, medium and spot contracts.

Oil and natural gas

Resource progression

bp manages its hydrocarbon resources in three major categories: prospect inventory, contingent resources and reserves. When a discovery is made, volumes usually transfer from the prospect inventory to the contingent resources category. The contingent resources move through various sub-categories as their technical and commercial maturity increases through appraisal activity.

At the point of final investment decision, most proved reserves will be categorized as proved undeveloped (PUD). Volumes will subsequently be recategorized from PUD to proved developed (PD) as a consequence of development activity. When part of a well's proved reserves depends on a later phase of activity, only that portion of proved reserves associated with existing, available facilities and infrastructure moves to PD. The first PD bookings will typically occur at the point of first oil or gas production. Major development projects typically take one to five years from the time of initial booking of PUD to the start of production. Changes to proved reserves bookings may be made due to analysis of new or existing data concerning production, reservoir performance, commercial factors and additional reservoir development activity.

Volumes can also be added or removed from our portfolio through acquisition or divestment of properties and projects. When we dispose of an interest in a property or project, the volumes associated with our adopted plan of development for which we have a final investment decision will be removed from our proved reserves upon completion of the transaction. When we acquire an interest in a property or project, the volumes associated with the existing development and any committed projects will be added to our proved reserves if bp has made a final investment decision and they satisfy the SEC's criteria for attribution of proved status. Following the acquisition, additional volumes may be progressed to proved reserves from non-proved reserves or contingent resources.

Non-proved reserves and contingent resources in a field will only be recategorized as proved reserves when all the criteria for attribution of proved status have been met and the volumes are included in the business plan and scheduled for development, typically within five years. bp will only book proved reserves where development is scheduled to commence after more than five years, if these proved reserves satisfy the SEC's criteria for attribution of proved status and bp management has reasonable certainty that these proved reserves will be produced.

At the end of 2023 bp had material volumes of proved undeveloped reserves held for more than five years in Azerbaijan. These are part of ongoing infrastructure-led development activities for which bp has a historical track record of completing comparable projects. We have no proved undeveloped reserves held for more than five years in our onshore US developments.

Over the past five years, bp has annually progressed a weighted average 17% (18% for 2022 five-year average) of our group proved undeveloped reserves (including the impact of disposals and price acceleration effects in PSAs) to proved developed reserves. This equates to a turnover time of six years.

Proved reserves as estimated at the end of 2023 meet bp's criteria for project sanctioning and SEC tests for proved reserves. We have not halted or changed our commitment to proceed with any material project to which proved undeveloped reserves have been attributed.

In 2023 we progressed 624mmboe of proved undeveloped reserves (542mmboe for our subsidiaries★ alone) to proved developed reserves through ongoing investment in our subsidiaries' and equity-accounted entities' development activities. Total development expenditure, excluding midstream activities, was $11,263 million in 2023 ($8,206 million for subsidiaries and $3,057 million for equity-accounted entities). Of the $8,206 million of total development expenditure for our subsidiaries, approximately $2,800 million was used for development activity to progress proved undeveloped reserves to proved developed. Of the $3,057 million development expenditure for our equity-accounted entities, approximately $1,200 million was used for development activity to progress proved undeveloped reserves to proved developed. The major areas with progressed volumes in 2023 were the US, Asia Pacific, Trinidad and Tobago and the Middle East.

Revisions of previous estimates for proved undeveloped reserves are due to changes relating to field performance, well results, revisions to future activity plans (including alignment with our investment criteria and changes to the macroeconomic climate) or changes in commercial conditions including price impacts. The net revisions to previous estimates across both our subsidiaries and our equity-accounted entities include net positive revisions driven by price and revisions to activity plans, and net negative revisions driven by field performance and well results. The net revisions to previous estimates across only our subsidiaries include net positive revisions driven by price and revisions to activity plans and net negative revisions driven by field performance and well results. In each case, none of these factors resulted in revisions that were material to the group as a whole. The following tables describe the changes to our proved undeveloped reserves position through the year for our subsidiaries and equity-accounted entities and for our subsidiaries alone.

Subsidiaries and equity-accounted entities	volumes in mmboe[a] Group
Proved undeveloped reserves at 1 January 2023	**2,877**
Revisions of previous estimates	**(12)**
Price	24
Revision of future activity plans	69
Field performance	(88)
Well results	(17)
Improved recovery	**108**
Discoveries and extensions	**107**
Purchases	**74**
Sales	**(10)**
Total in year proved undeveloped reserves changes	**267**
Proved developed reserves reclassified as undeveloped	**39**
Progressed to proved developed reserves by development activities (e.g. drilling/completion)	**(624)**
Proved undeveloped reserves at 31 December 2023	**2,558**

Subsidiaries only	volumes in mmboe[a]
Proved undeveloped reserves at 1 January 2023	**2,392**
Revisions of previous estimates	**(22)**
Price	16
Revision of future activity plans	51
Field performance	(87)
Well results	–
Improved recovery	**75**
Discoveries and extensions	**27**
Purchases	**61**
Sales	**(2)**
Total in year proved undeveloped reserves changes	**139**
Proved developed reserves reclassified as undeveloped	**17**
Progressed to proved developed reserves by development activities (e.g. drilling/completion)	**(542)**
Proved undeveloped reserves at 31 December 2023	**2,006**

a Because of rounding, some totals may not agree exactly with the sum of their component parts.

bp bases its proved reserves estimates on the requirement of reasonable certainty with rigorous technical and commercial assessments based on conventional industry practice and regulatory requirements. bp only applies technologies that have been field tested and have been demonstrated to provide reasonably certain results with consistency and repeatability in the formation being evaluated or in an analogous formation. bp applies high-resolution seismic data for the identification of reservoir extent and fluid contacts only where there is an overwhelming track record of success in its local application. In certain cases bp uses numerical simulation as part of a holistic assessment of recovery factor for its fields, where these simulations have been field tested and have been demonstrated to provide reasonably certain results with consistency and repeatability in the

★ See glossary on **page 373**

formation being evaluated or in an analogous formation. In certain deepwater fields bp has booked proved reserves before production flow tests are conducted, in part because of the significant safety, cost and environmental implications of conducting these tests. The industry has made substantial technological improvements in understanding, measuring and delineating reservoir properties without the need for flow tests. To determine reasonable certainty of commercial recovery, bp employs a general method of reserves assessment that relies on the integration of three types of data:

- Well data used to assess the local characteristics and conditions of reservoirs and fluids.
- Field scale seismic data to allow the interpolation and extrapolation of these characteristics outside the immediate area of the local well control.
- Data from relevant analogous fields.

Well data includes appraisal wells or sidetrack holes, full logging suites, core data and fluid samples. bp considers the integration of this data in certain cases to be superior to a flow test in providing understanding of overall reservoir performance. The collection of data from logs, cores, wireline formation testers, pressures and fluid samples calibrated to each other and to the seismic data can allow reservoir properties to be determined over a greater volume than the localized volume of investigation associated with a short-term flow test. There is a strong track record of proved reserves recorded using these methods, validated by actual production levels.

Governance

bp's centrally controlled process for proved reserves estimation approval forms part of a holistic and integrated system of internal control. It consists of the following elements:

- Accountabilities of certain officers of the group to ensure that there is review and approval of proved reserves bookings independent of the operating business and that there are effective controls in the approval process and verification that the proved reserves estimates and the related financial impacts are reported in a timely manner.
- Capital allocation processes, whereby delegated authority is exercised to commit to capital projects that are consistent with the delivery of the group's business plan. A formal review process exists to ensure that both technical and commercial criteria are met prior to the commitment of capital to projects.
- Internal audit, whose role is to consider whether the group's system of internal control is adequately designed and operating effectively to respond appropriately to the risks that are significant to bp.
- Approval hierarchy, whereby proved reserves changes above certain threshold volumes require immediate review and all proved reserves require annual central authorization and have scheduled periodic reviews. The frequency of periodic review ensures that 100% of the bp proved reserves base undergoes central review every three years.

bp's vice president of reserves is the individual primarily responsible for overseeing the preparation of the reserves estimate. He has more than 30 years of diversified industry experience in reserves estimation with the past four years managing the governance and compliance. He is a past Chairman of the Society of Petroleum Engineers (Russia & Caspian) and a member of the United Nations Economic Commission for Europe Expert Group on Resource Management.

No specific portion of compensation bonuses for senior management is directly related to proved reserves targets. Additions to proved reserves is one of several indicators by which the performance of the gas & low carbon and oil production & operations segments is assessed by the remuneration committee for the purposes of determining compensation bonuses for the executive directors. Other indicators include a number of financial and operational measures.

bp's variable pay programme for the other senior managers in the gas & low carbon and oil production & operations segments is based on individual performance contracts. Individual performance contracts are based on agreed items from the business performance plan, one of which, if chosen, could relate to proved reserves.

Compliance

International Financial Reporting Standards (IFRS) do not provide specific guidance on reserves disclosures. bp estimates proved reserves in accordance with SEC Rule 4-10 (a) of Regulation S-X and relevant Compliance and Disclosure Interpretations (C&DI) and Staff Accounting Bulletins as issued by the SEC staff.

By their nature, there is always risk involved in the ultimate development and production of proved reserves including, but not limited to: final regulatory approval; the installation of new or additional infrastructure, as well as changes in oil and gas prices; changes in operating and development costs; and the continued availability of additional development capital. All the group's proved reserves held in subsidiaries and equity-accounted entities are estimated by the group's petroleum engineers or by independent petroleum engineering consulting firms and then assured by the group's petroleum engineers.

Netherland, Sewell & Associates (NSAI), an independent petroleum engineering consulting firm, has estimated the net proved crude oil, condensate, natural gas liquids (NGLs) and natural gas reserves, as of 31 December 2023, of certain properties owned by bp in the US Lower 48. The properties evaluated by NSAI account for 100% of bp's net proved reserves in the US Lower 48 as of 31 December 2023. The net proved reserves estimates prepared by NSAI were prepared in accordance with the reserves definitions of Rule 4-10(a)(1)-(32) of Regulation S-X. All reserves estimates involve some degree of uncertainty. bp has filed NSAI's independent report on its reserves estimates as an exhibit to this Annual Report on Form 20-F filed with the SEC.

Our proved reserves are associated with both concessions (tax and royalty arrangements) and agreements where the group is exposed to the upstream risks and rewards of ownership, but where our entitlement to the hydrocarbons is calculated using a more complex formula, such as with PSAs. In a concession, the consortium of which we are a part is entitled to the proved reserves that can be produced over the licence period, which may be the life of the field. In a PSA, we are entitled to recover volumes that equate to costs incurred to develop and produce the proved reserves and an agreed share of the remaining volumes or the economic equivalent. As part of our entitlement is driven by the monetary amount of costs to be recovered, price fluctuations will have an impact on both production volumes and reserves.

We disclose our share of proved reserves held in equity-accounted entities (joint ventures★ and associates★), although we do not control these entities or the assets held by such entities.

bp's estimated net proved reserves and proved reserves replacement

94% of our total proved reserves of subsidiaries at 31 December 2023 were held through joint operations★ (94% in 2022), and 31% of the proved reserves were held through such joint operations where we were not the operator (34% in 2022).

Estimated net proved reserves of crude oil at 31 December 2023[abc]

			million barrels
	Developed	Undeveloped	Total
UK	129	74	203
US	713	352	1,065
Rest of North America	–	–	–
South America[d]	3	5	7
Africa	5	–	6
Rest of Asia	729	323	1,052
Australasia	11	1	12
Subsidiaries	1,590	755	2,345
Equity-accounted entities	588	387	976
Total	2,179	1,142	3,321

Estimated net proved reserves of natural gas liquids at 31 December 2023[a,b]

			million barrels
	Developed	Undeveloped	Total
UK	3	–	3
US	180	217	397
Rest of North America	–	–	–
South America	–	–	–
Africa	–	–	–
Rest of Asia	–	–	–
Australasia	1	–	1
Subsidiaries	184	217	401
Equity-accounted entities	19	6	25
Total	**204**	**223**	**427**

Estimated net proved reserves of liquids★

			million barrels
	Developed	Undeveloped	Total
Subsidiaries	1,775	971	2,746
Equity-accounted entities	608	393	1,001
Total	**2,382**	**1,365**	**3,747**

Estimated net proved reserves of natural gas at 31 December 2023[a,b]

			billion cubic feet
	Developed	Undeveloped	Total
UK	221	34	255
US	2,672	3,229	5,901
Rest of North America	–	–	–
South America[e]	931	503	1,434
Africa	518	207	724
Rest of Asia	3,051	1,672	4,722
Australasia	1,550	358	1,907
Subsidiaries	8,942	6,003	14,944
Equity-accounted entities	1,608	919	2,527
Total	**10,549**	**6,922**	**17,471**

Estimated net proved reserves on an oil equivalent basis

			million barrels of oil equivalent
	Developed	Undeveloped	Total
Subsidiaries	3,316	2,006	5,323
Equity-accounted entities	885	552	1,437
Total	**4,201**	**2,558**	**6,759**

[a] Proved reserves exclude royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently, and include non-controlling interests in consolidated operations. We disclose our share of reserves held in joint ventures and associates that are accounted for by the equity method although we do not control these entities or the assets held by such entities.
[b] The 2023 marker prices used were Brent $83.27/bbl (2022 $101.24/bbl and 2021 $69.23/bbl) and Henry Hub $2.58/mmBtu (2022 $6.19/mmBtu and 2021 $3.61/mmBtu).
[c] Includes condensate.
[d] Includes 2.2 million barrels of liquids in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.
[e] Includes 430 billion cubic feet of natural gas in respect of the 30% non-controlling interest in BP Trinidad and Tobago LLC.

Because of rounding, some totals may not agree exactly with the sum of their component parts.

Proved reserves replacement

Total hydrocarbon proved reserves at 31 December 2023, on an oil equivalent basis including equity-accounted entities, decreased by 6% compared with 31 December 2022 (8% decrease for subsidiaries and 4% increase for equity-accounted entities). Natural gas decreased by 5% (7% decrease for subsidiaries and 6% increase for equity-accounted entities).

There was a net increase from acquisitions and disposals of 31mmboe within our US and North Africa subsidiaries.

The proved reserves replacement ratio★ is the extent to which production is replaced by proved reserves additions. This ratio is expressed in oil equivalent terms and includes changes resulting from revisions to previous estimates, improved recovery, and extensions and discoveries. For 2023, the proved reserves replacement ratio excluding acquisitions and disposals was 47% (20% in 2022 and 50% in 2021) for subsidiaries and equity-accounted entities, 31% for subsidiaries alone and 136% for equity-accounted entities alone. There was a net increase (80mmboe) of reserves in some of our PSAs in Azerbaijan and the Middle East due to lower gas and oil prices, partially offset by a decrease in the US due to price.

In 2023 net additions to the group's proved reserves (excluding production, sales and purchases of reserves-in-place) amounted to 406mmboe (227mmboe for subsidiaries and 179mmboe for equity-accounted entities), through revisions to previous estimates including price, improved recovery from, and extensions to, existing fields and discoveries of new fields. The majority of subsidiary additions were through improved recovery from, and extensions to, existing fields and discoveries of new fields where they represented a mixture of proved developed and proved undeveloped reserves. The principal proved reserves additions in our subsidiaries by region were in the US and the Middle East. The principal reserves additions in our equity-accounted entities were in Aker BP and PAEG.

In January 2024 it was reported that the Oslo District Court had determined that certain development permits granted by the Norwegian government during 2023 were invalid. This includes development permits for two fields in which Aker bp has an interest. The court's decision is not final and could be appealed. If bp's equity-accounted share of the reserves attributable to these two fields is removed from the calculation of bp's 2023 proved reserves ratio, that ratio would decrease from 47% to 44%. Removal of the same reserves from bp's 2023 reporting would also impact proved hydrocarbon reserves for the group, proved undeveloped reserves and estimated net proved reserves on an oil equivalent basis amongst other reported measures both for equity-accounted entities and group.

26% of our proved reserves are associated with PSAs. The countries in which we produced under PSAs in 2023 were Algeria, Angola, Azerbaijan, Egypt, India, Indonesia, Mexico and Oman. In addition, the technical service contract (TSC)★ governing our investment in the Rumaila field in Iraq functions as a PSA.

The group holds no licences in our PSAs or TSCs due to expire within the next three years that would have a significant impact on bp's reserves or production, including undeveloped acreage.

For further information on our reserves see page 254.

bp's net production by country – crude oil[a] and natural gas liquids

						thousand barrels per day
						bp net share of production[b]
			Crude oil			Natural gas liquids
	2023	2022	2021	2023	2022	2021
Subsidiaries						
UK[c]	**74**	80	82	**5**	5	5
Total Europe	**74**	80	82	**5**	5	5
Lower 48 onshore[c]	**69**	71	69	**66**	56	48
Gulf of Mexico deepwater	**266**	225	239	**22**	19	22
Total US	**335**	296	308	**88**	76	70
Canada[cd]	**–**	15	25	**–**	–	–
Total Rest of North America	**–**	15	25	**–**	–	–
Total North America	**335**	311	333	**88**	76	70
Trinidad and Tobago	**4**	5	5	**4**	4	4
Total South America	**4**	5	5	**4**	4	4
Angola[c]	**–**	49	80	**–**	–	–
Egypt	**28**	28	23	**1**	–	–
Algeria[c]	**1**	5	6	**1**	6	7
Total Africa	**29**	83	110	**2**	6	7
Abu Dhabi	**197**	195	171	**–**	–	–
Azerbaijan	**70**	73	77	**–**	–	–
Iraq[c]	**–**	15	43	**–**	–	–
India	**–**	–	–	**4**	–	–
Oman[c]	**22**	24	26	**–**	–	–
Total Rest of Asia	**289**	307	318	**4**	–	–
Total Asia	**289**	307	318	**4**	–	–
Australia[c]	**8**	11	11	**2**	2	2
Eastern Indonesia	**2**	1	2	**–**	–	–
Total Australasia	**10**	12	13	**2**	2	2
Total subsidiaries	**741**	797	860	**104**	93	88
Equity-accounted entities (bp share)						
Rosneft[e] (Russia, Egypt)	**–**	144	857	**–**	–	3
Argentina	**51**	51	50	**1**	1	1
Mexico	**5**	6	3	**–**	–	–
Bolivia	**1**	2	2	**–**	–	–
Egypt	**–**	–	–	**2**	3	3
Norway	**60**	47	48	**3**	2	3
Russia	**–**	7	30	**–**	–	–
Iraq	**62**	25		**–**		
Angola	**82**	33	1	**4**	2	3
Total equity-accounted entities	**261**	314	991	**9**	9	12
Total subsidiaries and equity-accounted entities[f]	**1,002**	1,111	1,851	**113**	102	100

[a] Includes condensate.
[b] Production excludes royalties due to others whether payable in cash or in kind where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.
[c] In 2023, bp disposed of its interests in Algeria. In 2022, bp disposed of its interests in Angola, its interest in Sunrise Oil Sands in Canada, its interest in Rumaila in Iraq, and certain Lower 48 onshore interests in the US and certain offshore interests in Australia. In 2021, bp disposed of 20% of its interest in Block 61 in Oman, its interest in Shearwater in the UK North Sea, and certain Lower 48 onshore interests in the US.
[d] All of the production from Canada in Subsidiaries is bitumen.
[e] 2022 reflects bp's estimated share of Rosneft production for the period 1 January to 27 February, averaged over the year (see Financial statements – Note 1). Includes production in respect of the non-controlling interest in Rosneft, including production held through bp's interests in Russia other than Rosneft.
[f] Includes 2 net mboe/d of NGLs from processing plants in which bp has an interest (2022 2mboe/d and 2021 3mboe/d).

Because of rounding, some totals may not agree exactly with the sum of their component parts.

bp's net production by country – natural gas

			million cubic feet per day
			bp net share of production[a]
	2023	2022	2021
Subsidiaries			
UK[b]	**247**	271	236
Total Europe	**247**	271	236
Lower 48 onshore[b]	**1,338**	1,148	1,043
Gulf of Mexico deepwater	**149**	143	154
Total US	**1,486**	1,291	1,197
Canada	**–**	–	2
Total Rest of North America	**–**	–	2
Total North America	**1,486**	1,291	1,199
Trinidad and Tobago	**1,191**	1,276	1,260
Total South America	**1,191**	1,276	1,260
Egypt	**1,220**	1,272	1,206
Algeria[b]	**16**	81	126
Total Africa	**1,236**	1,353	1,332
Azerbaijan	**714**	670	539
India	**283**	216	169
Oman[b]	**582**	599	571
Total Rest of Asia	**1,578**	1,485	1,279
Total Asia	**1,578**	1,485	1,279
Australia	**301**	331	332
Eastern Indonesia	**473**	421	429
Total Australasia	**774**	752	760
Total subsidiaries[c]	**6,512**	6,428	6,067
Equity-accounted entities (bp share)			
Rosneft[d] (Russia, Canada, Egypt, Vietnam)	**–**	238	1,380
Argentina	**247**	238	223
Bolivia	**50**	56	60
Mexico	**2**	2	1
Norway	**58**	66	66
Russia	**–**	10	42
Angola	**74**	64	77
Total equity-accounted entities[c]	**432**	674	1,849
Total subsidiaries and equity-accounted entities	**6,944**	7,101	7,915

[a] Production excludes royalties due to others whether payable in cash or in kind where the royalty owner has a direct interest in the underlying production and the option and ability to make lifting and sales arrangements independently.

[b] In 2023, bp disposed of its interests in Algeria and certain Lower 48 onshore interests in the US. In 2022, bp disposed of certain Lower 48 onshore interests in the US. In 2021, bp disposed 20% of its interest in Block 61 in Oman, its interest in Shearwater in the UK North Sea, and certain Lower 48 onshore interests in the US.

[c] Natural gas production volumes exclude gas consumed in operations within the lease boundaries of the producing field, but the related reserves are included in the group's reserves.

[d] 2022 reflects bp's estimated share of Rosneft production for the period 1 January to 27 February, averaged over the year (see Financial statements – Note 1). Includes production in respect of the non-controlling interest in Rosneft, including production held through bp's interests in Russia other than Rosneft.

Because of rounding, some totals may not agree exactly with the sum of their component parts.

The following tables provide additional data and disclosures in relation to our oil and gas operations.

Average sales price per unit of production (realizations*)[a]

	Europe		North America		South America	Africa	Asia		Australasia	Total group average
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		$ per unit of production
Subsidiaries										
2023										
Crude oil[b]	**82.99**	**–**	**75.28**	**–**	**84.36**	**76.30**	**–**	**83.86**	**68.27**	**79.37**
Natural gas liquids	**46.52**	**–**	**19.26**	**–**	**30.76**	**44.41**	**–**	**–**	**33.47**	**23.79**
Gas	**16.71**	**–**	**2.08**	**–**	**3.58**	**4.82**	**–**	**7.72**	**8.89**	**5.60**
2022										
Crude oil[b]	102.54	–	90.05	84.88	99.09	102.00	–	98.74	86.11	95.70
Natural gas liquids	60.41	–	31.72	–	60.55	54.78	–	–	54.20	37.00
Gas	33.45	–	5.61	3.68	7.65	5.21	–	11.81	12.33	9.29
2021										
Crude oil[b]	71.99	–	62.58	52.49	67.62	68.98	–	67.94	61.46	65.81
Natural gas liquids	52.07	–	26.85	–	32.81	51.01	–	–	40.98	30.89
Gas	14.59	–	3.68	2.63	4.06	4.36	–	5.66	7.25	5.20
Equity-accounted entities[c]										
2023										
Crude oil[b]	**–**	**81.61**	**–**	**–**	**75.49**	**80.21**	**–**	**75.21**	**–**	**78.33**
Natural gas liquids	**–**	**–**	**–**	**–**	**30.95**	**42.89**	**N/A**	**–**	**–**	**36.70**
Gas	**–**	**12.80**	**–**	**–**	**3.66**	**–**	**–**	**–**	**–**	**5.15**
2022										
Crude oil[b]	–	71.14	–	–	78.05	86.73	102.84	90.16	–	90.18
Natural gas liquids[d]	–	–	–	–	46.64	–	N/A	–	–	46.64
Gas	–	24.23	–	–	4.75	–	4.35	–	–	6.91
2021										
Crude oil[b]	–	69.23	–	–	62.62	–	61.98	–	–	62.60
Natural gas liquids[d]	–	–	–	–	42.47	–	N/A	–	–	42.47
Gas	–	15.26	–	–	3.44	–	1.69	–	–	2.49

Average production cost per unit of production[e]

	Europe		North America		South America	Africa	Asia		Australasia	Total group average
	UK	Rest of Europe	US	Rest of North America			Russia	Rest of Asia		$ per unit of production
Subsidiaries										
2023	**10.69**	**–**	**9.61**	**–**	**4.53**	**2.52**	**–**	**2.81**	**2.09**	**5.78**
2022	10.36	–	9.70	15.36	3.92	5.02	–	3.52	2.04	6.07
2021	13.97	–	9.17	13.18	4.49	6.17	–	4.92	2.27	6.82
Equity-accounted entities										
2023	**–**	**6.22**	**–**	**–**	**17.87**	**15.46**	**–**	**16.41**	**–**	**14.38**
2022	–	6.01	–	–	15.55	21.01	7.39	20.81	–	11.47
2021	–	9.75	–	–	11.21	–	2.76	–	–	3.82

a Units of production are barrels for liquids and thousands of cubic feet for gas. Realizations include transfers between businesses, except in the case of Russia.
b Includes condensate.
c In certain countries it is common for equity-accounted entities' agreements to include pricing clauses that require selling a significant portion of the entitled production to local governments or markets at discounted prices.
d Natural gas liquids for Russia are included in crude oil.
e Units of production are barrels for liquids and thousands of cubic feet for gas. Amounts do not include ad valorem and severance taxes.

Additional information for customers & products

Reconciliation of customers & products RC profit before interest and tax to underlying RC profit before interest and tax to adjusted EBITDA★ by business

			$ million
	2023	2022	2021
RC profit before interest and tax for customers & products	**4,230**	8,869	2,208
Less: Adjusting items gains (charges)	**(2,183)**	(1,920)	(1,044)
Underlying RC profit before interest and tax for customers & products	**6,413**	10,789	3,252
By business:			
customers – convenience & mobility	**2,644**	2,966	3,052
Castrol – included in customers	**730**	700	1,037
products – refining & trading	**3,769**	7,823	200
Add back: Depreciation, depletion and amortization	**3,548**	2,870	3,000
By business:			
customers – convenience & mobility	**1,736**	1,286	1,306
Castrol – included in customers	**167**	153	150
products – refining & trading	**1,812**	1,584	1,694
Adjusted EBITDA for customers & products	**9,961**	13,659	6,252
By business:			
customers – convenience & mobility	**4,380**	4,252	4,358
Castrol – included in customers	**897**	853	1,187
products – refining & trading	**5,581**	9,407	1,894

Sales volume

			thousand barrels per day
	2023	2022	2021
Marketing sales[a]	**2,718**	2,613	2,439
Trading/supply sales[b]	**358**	350	393
Total refined product sales	**3,076**	2,963	2,832
Crude oil[c]	**102**	184	249
Total	**3,178**	3,147	3,081

a Marketing sales include branded and unbranded sales of refined fuel products and lubricants to business-to-business and business-to-consumer customers, including service station dealers, jobbers, airlines, small and large resellers such as hypermarkets, and the military.
b Trading/supply sales are fuel sales to large unbranded resellers and other oil companies.
c Crude oil sales relate to third-party transactions executed primarily by trading and shipping. In addition, reported crude oil sales in 2023 includes 68 thousand barrels per day (2022 67 thousand barrels per day and 2021 50 thousand barrels per day) relating to volumes sold directly by the gas & low carbon energy and oil production & operations segments.

In the table above, volumes of crude oil and refined product trading/supply sales are presented on a basis consistent with income statement presentation. These figures do not correspond to actual volumes of physically traded energy products and are not intended for use in assessing emissions volumes or carbon intensity. Marketing volumes shown represent physically delivered transactions regardless of income statement presentation of such transactions.

Reconciliation of customers & products RC profit before interest and tax to convenience gross margin

			$ million
	2023	2022	2021
RC profit before interest and tax for customers & products	**4,230**	8,869	2,208
Subtract RC profit (loss) before interest and tax for refining & trading	**1,943**	6,008	(468)
	2,287	2,861	2,676
Net (favourable) adverse impact of adjusting items for convenience & mobility	**357**	105	376
Underlying RC profit before interest and tax for convenience & mobility	**2,644**	2,966	3,052
Subtract underlying RC profit before interest and tax for Castrol	**730**	700	1,037
Add back convenience & mobility (excluding Castrol) depreciation, depletion and amortization	**1,569**	1,133	1,156
Subtract convenience & mobility (excluding Castrol) production and manufacturing, distribution and administration expenses and adjusted for fuels, EV charging, aviation, B2B and midstream gross margin[a]	**1,363**	1,655	1,335
Subtract earnings from equity-accounted entities in convenience & mobility (excluding Castrol)	**457**	225	330
Convenience gross margin[b]	**1,663**	1,519	1,506
Foreign exchange effects	**–**	7	(122)
At constant foreign exchange	**1,663**	1,526	1,384
Convenience gross margin growth[c]	**9%**		

a Adjusted for portfolio changes.
b Excluding TravelCenters of America and adjusted for other portfolio changes.
c Values are at end 2023 foreign exchange rates. This requires a calculation of the comparative convenience gross margin ($ million) at current period foreign exchange rates (constant foreign exchange) to compare the current period value with the restated comparative period value.

Retail sites[a]

	2023	2022	2021
			Number of bp-branded retail sites
US	**8,200**	7,750	7,450
Europe	**8,050**	8,150	8,250
Rest of world	**4,850**	4,750	4,800
Total	**21,100**	20,650	20,500

[a] Reported to the nearest 50. Includes sites operated by dealers, jobbers, franchisees, brand licensees or joint venture (JV) partners, under the bp brand. These may move to and from the bp brand as their fuel supply agreement or brand licence agreement expires and are renegotiated in the normal course of business. Retail sites are primarily branded *bp, ARCO, Amoco, Aral, Thorntons and* TravelCenters of America and also include sites in India through our Jio-bp JV.

Refinery throughputs[a b c]

	2023	2022	2021
			thousand barrels per day
US	**662**	678	719
Europe	**749**	804	787
Rest of world	**–**	22	88
Total	**1,411**	1,504	1,594
			%
Refining availability★	**96.1**	94.5	94.8

[a] This does not include bp's interest in Pan American Energy Group.
[b] Refinery throughputs reflect crude oil and other feedstock volumes.
[c] On 28 February 2023, bp completed the sale of its 50% interest in the bp-Husky Toledo refinery in Ohio, US, to Cenovus Energy, its partner in the facility.

Refinery capacity

The following table[a b] summarizes bp's average daily crude distillation capacities as at 31 December 2023.

	Country	Refinery	Crude distillation capacities[c] thousand barrels per day
US			
US North West	US	Cherry Point	**251**
US Mid West		Whiting	**440**
			691
Europe			
North West Europe	Germany	Gelsenkirchen	**265**
		Lingen	**97**
	Netherlands	Rotterdam	**394**
Mediterranean	Spain	Castellón	**110**
			866
Total capacity at 31 December 2023			**1,557**

[a] This does not include bp's interest in Pan American Energy Group.
[b] On 28 February 2023, bp completed the sale of its 50% interest in the bp-Husky Toledo refinery in Ohio, US, to Cenovus Energy, its partner in the facility.
[c] Crude distillation capacity is gross rated capacity, which is defined as the highest average sustained unit rate for a consecutive 30-day period under normal operational conditions.

Environmental expenditure

			$ million
	2023	2022	2021
Operating expenditure	**524**	416	362
Capital expenditure	**329**	224	222
Clean-ups	**23**	16	17
Additions to environmental remediation provision	**228**	502	363
Increase (decrease) in decommissioning provision	**920**	1,248	1,231

Operating and capital expenditure on the prevention, control, treatment or elimination of air and water emissions and solid waste is often not incurred as a separately identifiable transaction. Instead, it forms part of a larger transaction that includes, for example, normal operations and maintenance expenditure. The figures for environmental operating and capital expenditure in the table are therefore estimates, based on the definitions and guidelines of the American Petroleum Institute.

Environmental operating expenditure of $524 million in 2023 (2022 $416 million) showed an overall increase of 26%, largely due to increased expenditure in BP Rotterdam and BP North America Gas.

Environmental capital expenditure of $329 million in 2023 (2022 $224 million) showed an overall increase of 47% largely due to increased expenditure for BP Products North America and BP North America Gas.

Clean-up costs were $23 million in 2023 (2022 $16 million), representing oil spill clean-up costs and other associated remediation and disposal costs.

In addition to operating and capital expenditure, we also establish provisions for future environmental remediation work. Expenditure against such provisions normally occurs in subsequent periods and is not included in environmental operating expenditure reported for such periods.

Provisions for environmental remediation are made when a clean-up is probable and the amount of the obligation can be reliably estimated. Generally, this coincides with the commitment to a formal plan of action or, if earlier, on divestment or on closure of inactive sites.

The extent and cost of future environmental restoration, remediation and abatement programmes are inherently difficult to estimate. They often depend on the extent of contamination, and the associated impact and timing of the corrective actions required, technological feasibility and bp's share of liability. Though the costs of future programmes could be significant and may be material to the results of operations in the period in which they are recognized, it is not expected that such costs will be material to the group's overall results of operations or financial position.

Additions to our environmental remediation provision reflect new liabilities and scope/cost reassessments of the remediation plans of a number of our sites, primarily in the US. The charge for environmental remediation provisions in 2023 arising from new and acquired sites was $37 million (2022 $67 million and 2021 $33 million).

In addition, we make provisions on installation of our oil and gas producing assets and related pipelines to meet the cost of eventual decommissioning. On installation of an oil or natural gas production facility, a provision is established that represents the discounted value of the expected future cost of decommissioning the asset.

In 2023, the net increase in the decommissioning provision was primarily due to recognition of additional provisions and changes in cost estimate assumptions.

We undertake periodic reviews of existing provisions. These reviews take account of revised cost assumptions, changes in decommissioning requirements and any technological developments.

Provisions for environmental remediation and decommissioning are usually established on a discounted basis, as required by IAS 37 'Provisions, Contingent Liabilities and Contingent Assets'.

Further details of decommissioning and environmental provisions appear in Financial statements – Note 23.

Regulation of the group's business

Our businesses and operations are subject to the laws and regulations applicable in each country, state or other regional or local area in which they occur. These cover virtually all aspects of bp's activities and include matters such as the acquisition of rights to develop and operate projects, production rates, royalties, environmental, health and safety protection, fuel specifications and transportation, trading, pricing, anti-trust, export, taxes, and foreign exchange.

Oil and gas contractual and regulatory framework

The terms and conditions of the leases, licences and contracts under which our upstream oil and gas interests are held vary from country to country. These leases, licences and contracts are generally granted by or entered into with a government entity or state-owned or controlled company and are sometimes entered into with private property owners. Arrangements with governmental or state entities usually take the form of licences or production-sharing agreements★ (PSAs), although arrangements with private entities and the US government entities are usually by lease.

Licences (or concessions) give the holder the right to explore for, develop and produce a commercial discovery. Under a licence, the holder bears the risk of exploration, development and production activities and provides the financing for these operations. In principle, the licence holder is entitled to all production, minus any royalties that are payable in kind. A licence holder is generally required to pay production taxes or royalties, which may be in cash or in kind.

In certain countries, separate licences are required for exploration and production activities, and in some cases production licences are limited to only a portion of the area covered by the original exploration licence.

PSAs entered into with a government entity or state-owned or state-controlled company generally require bp (alone or with other contracting companies) to provide all the financing and bear the risk of exploration and production activities in exchange for a share of the production remaining after royalties, if any. Less typically, bp may explore for, develop and produce hydrocarbons under a service agreement with the host entity in exchange for reimbursement of costs and/or a fee paid in cash rather than production.

bp frequently conducts its exploration and production activities in joint arrangements or co-ownership arrangements with other international oil companies, state-owned or -controlled companies and/or private companies. Conventionally, all costs, benefits, rights, obligations, liabilities and risks incurred in carrying out joint arrangement or co-ownership operations under a lease, licence or PSA are shared among the joint arrangement or co-owning parties according to agreed ownership interests which are set out in a joint operating agreement. To the extent that any liabilities arise, whether to governments or third parties, or as between the joint arrangement parties or co-owners themselves, each joint arrangement party or co-owner will generally be liable under the terms of a joint operating agreement to meet these in proportion to its ownership interest. Any agreed allocation of liability amongst the joint arrangement parties is, however, often different to the position under the relevant licence, lease or PSA which may provide for joint and several liability of the joint arrangement parties including for decommissioning obligations. In many upstream operations, a party (known as the operator) will be appointed (pursuant to a joint operating agreement) to carry out day to-day operations on behalf of the joint arrangement or co-ownership. The operator is typically one of the joint arrangement parties or a co-owner and will carry out its duties either through its own staff, or by contracting out various elements to third-party contractors or service providers. bp acts as operator on behalf of joint arrangements and co-ownerships in a number of countries.

Frequently, work (including drilling and related activities) will be contracted out to third-party service providers. The relevant contract will specify the work, the remuneration, and typically the risk allocation between the parties. Depending on the service to be provided, the contract may also contain provisions allocating risks and liabilities associated with pollution and environmental damage, damage to a well or hydrocarbon reservoirs and for claims from third parties or other losses. The allocation of those risks

★ See glossary on **page 373**

varies among contracts and is determined through negotiation between the parties.

In general, bp incurs income tax on income generated from production activities (whether under a licence or PSA). In addition, depending on the area, bp's production activities may be subject to a range of other taxes, levies and assessments, including special petroleum taxes and revenue taxes. The taxes imposed on oil and gas production profits and activities may be substantially higher than those imposed on other activities, for example in Egypt, the UK, the US and the United Arab Emirates.

Low carbon energy – renewables contractual and regulatory framework

The majority of our renewable assets are held indirectly through interests in incorporated joint ventures or special purpose entities (in either case, a Project Company). The renewables contractual and regulatory framework and the rights granted in relation to a renewable asset significantly vary from country to country. In some countries, the regulatory framework is still under development or subject to significant change as the renewables industry evolves.

In general terms the rights to a renewable asset are usually held by a Project Company through a package of assets that together form the renewable project owned by such Project Company, including:

- one or more leases, easements, or licences over land or seabed granted by a public or private individual or entity that grant the Project Company rights to develop, build and operate the renewable asset in such areas of land or seabed;
- one or more generation licences that grant the Project Company the right to produce and sell the electricity to the market;
- an interconnection agreement that grants the Project Company the right to connect the power project into the grid;
- an offtake agreement which, depending on the country's electricity market, is entered into with a utility company, a corporate buyer or a public entity; and
- potentially, a subsidy mechanism in the form of a feed in tariff, contract for difference, hedging mechanism or renewable energy certificate to support the development of the project.

The risk allocation between the developer/generator and the host government or private entity has not been standardized in the industry. However, in general terms the Project Company bears the risk of the development, construction and operation of the renewable energy project and secures the financing for these operations and receives any profit from the revenue generated through the offtake agreement and/or subsidy mechanism (if available).

US Inflation Reduction Act

The US Inflation Reduction Act (IRA), which was signed into law in August 2022, includes a significant package of largely supply-side measures supporting low carbon energy sources and decarbonization technologies in the US. The impact of the IRA both on bp's businesses and more widely on the US economy is likely to depend on various factors which are currently uncertain, including the implementation of the incentive programmes by the US authorities through the Department of Energy (DOE) and other agencies, as well as regulatory initiatives at the local and federal level.

In 2023, bp participated in applications for and was subsequently notified that it will be awarded various DOE grants related to certain of bp's low carbon energy and decarbonization projects. bp and its co-applicants are currently negotiating the applicable award agreements with the DOE and we anticipate finalizing these agreements in 2024.

Greenhouse gas regulation

In December 2015, nearly 200 nations at the United Nations climate change conference in Paris (COP21) agreed to the Paris Agreement which aims to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. Signatories aim to reach global peaking of greenhouse gas (GHG) emissions as soon as possible and to undertake rapid reductions thereafter, so as to achieve a balance between human caused emissions and removals by sinks of GHGs in the second half of this century. The Paris Agreement commits all signatories to submit Nationally Determined Contributions (NDCs) (i.e. pledges or plans of climate action) and pursue domestic measures aimed at achieving the objectives of their NDCs. Signatories are required to submit revised NDCs every five years, and the revised NDCs are expected to be more ambitious with each revision. The first global stocktake of progress was published by the United Nations in September 2023 and further assessments will occur every five years. The UAE conference (COP28) in Dubai, which took place in November and December 2023, marked the conclusion and outcome of this first stocktake and reached a 'consensus' which includes calls for an acceleration of efforts towards the phase-down of unabated coal power and to transition away from fossil fuels in energy systems.

More stringent national and regional measures relating to the transition to a lower carbon economy, such as the UK's 2050 net zero carbon emissions commitment, can be expected in the future. These measures could increase bp's production costs for certain products, increase compliance and litigation costs, increase demand for competing energy alternatives or products with lower-carbon intensity, and affect the sales and specifications of many of bp's products. Further, such measures could lead to constraints on production and supply and access to new reserves, particularly due to the long-term nature of many of bp's projects.

Certain current and announced GHG measures and developments potentially affecting bp's businesses in various markets in which bp operates are summarized below. For information on steps that bp is taking in relation to climate change issues and for details of bp's GHG reporting, see Sustainability – Net zero aims on page 48.

United States

In the US, bp's operations are affected by GHG regulation in a number of ways. The federal Clean Air Act (CAA) regulates air emissions, permitting, fuel specifications and other aspects of our production, refining, distribution and marketing activities.

In November, 2023, the Environmental Protection Agency (EPA) promulgated the "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review." These regulations are focused on methane emissions from oil and gas production at new and existing facilities and include significant requirements in the areas of fugitive emissions monitoring and repair, flaring, emission event reporting, process controller and pump emissions, and storage vessels.

The IRA requires EPA to collect an annual Waste Emissions Charge (WEC) on methane emissions from oil and natural gas facilities that exceed specific levels of emissions and methane intensity. The WEC is $900/metric ton of methane emissions occurring in 2024, $1,200/metric ton for emissions occurring in 2025, and $1,500/metric ton for emissions occurring in 2026 and years thereafter. In January 2024, EPA proposed regulations to implement the WEC provisions of the IRA. The date and details of those final regulations to be issued are uncertain.

Other EPA GHG and environmental regulations affect electricity generation practices and prices and have an impact on the market for fuels used to generate electricity and on renewable energy installations. These regulations are in flux due to changes in approach between presidential administrations, as well as lawsuits challenging those regulations.

In June 2022, the Supreme Court decision in West Virginia v. EPA limited EPA's regulatory authority to require electricity 'generation shifting' (e.g., from coal to natural gas or renewable sources). In May 2023, EPA proposed new carbon pollution standards for coal and gas-fired power plants. The proposed regulations would tighten emissions limits for those plants and require some plants to install carbon capture technology. The date and requirements of any final regulations issued are uncertain.

In April 2023, EPA proposed regulations to significantly tighten emissions standards for light- and medium-duty vehicles for model year (MY) 2027 and beyond. The proposed regulations are intended to spur emissions reductions technology on hydrocarbon-powered vehicles and to encourage the transition to electric vehicles. The date and requirements of any final regulations issued are uncertain.

The Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007 impose the Renewable Fuel Standard (RFS), requiring transportation fuel sold in the United States to contain a minimum volume of renewable fuels. On June 21, 2023, EPA announced a final rule establishing biofuel volume requirements and associated percentage standards for cellulosic biofuel, biomass-based diesel (BBD), advanced biofuel, and total renewable fuel for 2023-25. Lawsuits have been filed challenging this final rule. In addition, certain state initiatives impose carbon-intensity reduction requirements on transportation fuels sold in those states (e.g. in California, Oregon and Washington).

The federal GHG Mandatory Reporting Rule requires operators of certain facilities and producers and importers/exporters of petroleum products to file annual GHG emissions reports with EPA quantifying direct emissions from affected facilities, as well as the emissions that would result from the release or combustion of the petroleum products imported, exported or produced.

A number of states, municipalities and regional organizations continue to advance climate initiatives that affect our US operations. For example, certain state initiatives impose carbon-intensity reduction requirements on transportation fuels sold in those states (e.g. in California, Oregon, and Washington). Recently, California proposed to increase the stringency of its Low Carbon Fuel Standard (LCFS) to achieve a 30% reduction in carbon intensity required by 2030 (up from 20%). The State of Washington enacted state-wide carbon cap and invest legislation and a Clean Fuel Program (similar to California's LCFS) in 2021. In 2022, the State of Washington finalized rules implementing both of those programmes.

Our US businesses are subject to increased GHG and other environmental requirements and regulatory uncertainty, including that the current or any future US administration could revise or revoke current or prior administration programmes, as well as the possibility of increased expenditures in having to comply with numerous diverse and non-uniform regulatory initiatives at the state and local level.

US fuel markets are affected by EPA and National Highway Traffic Safety Administration (NHTSA) regulation of light, medium and heavy-duty vehicle emissions (both fuel economy and tailpipe standards) as well as for non-road engines and vehicles and certain large GHG stationary emission sources. California also imposes Low Emission Vehicle (LEV) and Zero Emission Vehicle (ZEV) standards on vehicle manufacturers, and a number of other states, as allowed by CAA authority, have adopted California's standards. In August 2022, California finalized the next generation of its GHG and ZEV standards (referred to as 'ACC II'). California filed a waiver application with EPA in December 2023. Fifteen other states have adopted ACC II although EPA has not yet acted upon the application. These regulations may impact bp's product mix and demand for particular products in those states. In August 2020, California also entered into agreements with several carmakers to meet more demanding emissions standards in California. In March 2023, EPA granted California's request for a waiver of pre-emption covering, in part, its Advanced Clean Trucks Program, which mandates increasing quantities of ZEV sales for medium- and heavy-duty vehicles in the state. A legal challenge to that decision is pending in the U.S. Court of Appeals for the D.C. Circuit.

In 2021 and 2022, the Biden administration revised the fuel economy and tailpipe carbon dioxide emissions standards for passenger cars and light trucks covering model years (MY) 2023 through 2026. The revised standards are more stringent through MY 2026 than the August 2020 agreements California reached with several carmakers. EPA's new tailpipe carbon dioxide emissions standards were challenged in the U.S. Court of Appeals with a decision still pending. EPA has also restored California's Clean Air Act waiver allowing it to set its own GHG automotive tailpipe standards and for other states to adopt those standards. That decision has also been challenged in the U.S. Court of Appeals.

In December 2022, EPA promulgated regulations establishing new emission standards for oxides of nitrogen (NOx) and other pollutants for highway heavy-duty engines. California has also adopted a 'Heavy-Duty Low NOx Omnibus Regulation' which will require manufacturers to comply with stricter emissions standards and a number of other states have opted or are planning to opt into those California standards. The rule is being phased in, with the first phase effective in 2024. bp continues to monitor these rules for implications for fuels. These and other EPA initiatives to reduce GHG emissions may have a significant effect on the production, sale and profitability of many of bp's products in the US.

European Union

The EU has adopted a goal of achieving climate neutrality by 2050 as part of the European Green Deal and, subsequently, a 55% GHG reduction target by 2030 compared to 1990 levels. To achieve this target, EU member states and Parliament adopted most measures proposed as part of the so-called 'Fit for 55' package. These include revisions of the EU Emissions Trading Scheme (EU ETS) and a newly created Carbon Border Adjustment Mechanism (CBAM); the Renewable Energy Directive (RED) – including an obligation on transport fuel suppliers to increase the share of renewables of their fuel supply; a sustainable aviation fuel (SAF) blending mandate from 2025; and CO^2 targets for the sales of new vehicles which are expected to accelerate the decarbonisation of the transport sector and impact fuel demand.

Once fully adopted and implemented, this would inter alia lead to higher shares of renewables across all sectors (including transport), a reduced number of GHG emission allowances under the EU ETS, and a target of zero gramme of CO^2 per km for new passenger cars by 2035. The EU also adopted measures to reduce methane emissions.

Some EU member states have adopted national targets above and beyond current EU climate goals, such as Germany, with a climate neutrality target by 2045.

United Kingdom

In April 2021, the UK government announced a target of a 78% reduction in emissions by 2035 compared to 1990 levels.

The UK Emissions Trading System (UK ETS) launched on 1 January 2021 following the end of the Brexit transition period and the UK's participation in the EU ETS. It seeks to provide a carbon pricing mechanism as a tool for helping achieve the UK's net zero target and covers the same GHGs and sectors as the EU ETS. bp's North Sea operations are subject to the UK ETS.

In July 2023, the UK government published a response to a 2022 consultation on proposed changes to the UK ETS rules. That response included decisions to expand the scope of the scheme to include domestic maritime transport from 2026, waste incineration and energy from waste from 2028 and process emissions from carbon dioxide venting from the upstream oil and gas sector from 2025.

In December 2023, the UK ETS Authority published two consultations. One covers a review of the UK ETS markets policy and the other relates to a review of free allocation methodology for the stationary sectors under the UK ETS to better target those most at risk of carbon leakage.

Other countries and regions

China is operating emission trading pilot programmes in a number of cities and provinces. One of bp's subsidiaries in China is participating in these programmes. In February 2021 China introduced a national emissions trading market (National ETS). The National ETS is intended to be an essential tool for China to fulfil its commitment to reach peak emissions by 2030 and carbon neutrality by 2060. For now, the National ETS participants are limited to the key emission entities identified by each provincial-level government authority and approved by Ministry for Ecology and Environment of China. bp is not participating in the National ETS.

In October 2021, as part of its '1+N' climate policy framework, China issued working guidance setting out specific targets and measures for achieving peak carbon emissions and carbon neutrality, and an action plan which sets out the main objectives for the next decade to achieve peak carbon emissions by 2030. The working guidance is the '1' (i.e., a long-term approach to combating climate change), while 'N' are various policies starting with the action plan. In June 2022, 17 government authorities jointly released the National Climate Change Adaptation Strategy 2035 making overall plans to prepare the country to adapt to climate change from the present to 2035.

China's domestic voluntary carbon mechanism called the China Certified Emission Reduction (CCER) programme has been suspended since 2017. In 2023, significant progress toward relaunching the CCER has been made by relevant authorities, including the promulgation of a regulation on CCER trading for trial implementation and the publication of methodologies that will be used to quantify net emission reductions or removals for four types of projects (forestation, solar thermal power, offshore wind power generation and mangrove revegetation).

On 5 January 2024, China's State Council approved an interim regulation for the national emissions trading scheme. The final version was issued on 4 February 2024 which has provisions on defining the scale of the national

★ See glossary on **page 373**

carbon market, determining allocation of emissions allowances and data quality supervision.

Other environmental regulation

In addition to the GHG regulations referred to above, climate change programmes and regulation of unconventional oil and gas extraction under a number of environmental laws may have a significant effect on the production, sale and profitability of many of bp's products.

Environmental laws also require bp to remediate and restore areas affected by the release of hazardous substances or hydrocarbons associated with our operations or properties. These laws may apply to sites that bp currently owns or operates, sites that it previously owned or operated, or sites used for the disposal of its and other parties' waste. See Financial statements – Note 23 for information on provisions for environmental restoration and remediation.

A number of pending or anticipated governmental proceedings against certain bp group companies under environmental laws could result in monetary or other sanctions. Group companies are also subject to environmental claims for personal injury and property damage alleging the release of, or exposure to, hazardous substances. The costs associated with future environmental remediation obligations, governmental proceedings and claims could be significant and may be material to the results of operations in the period in which they are recognized. We cannot accurately predict the effects of future developments, such as stricter environmental laws and regulations or enforcement policies, or future events at our facilities on the group, and there can be no assurance that material liabilities and costs will not be incurred in the future. For a discussion of the group's environmental expenditure, see page 353 and for a discussion of legal proceedings, see page 242.

Significant health, safety and environmental legislation and regulation affecting our businesses and profitability, in addition to those referred to above, include the following:

United States

- The Clean Water Act regulates wastewater and other effluent discharges from bp's facilities, and bp is required to obtain discharge permits, install control equipment and implement operational controls and preventative measures.
- The Resource Conservation and Recovery Act (RCRA) regulates the generation, storage, transportation and disposal of wastes associated with our operations and can require corrective action at locations where such wastes have been disposed of or released. bp has incurred, or is likely to incur, liability under RCRA or similar state laws in connection with sites bp operates or previously operated.
- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) can, in certain circumstances, impose the entire cost of investigation and remediation on a party who owned or operated a site contaminated with a hazardous substance, or who arranged for disposal of a hazardous substance at a site. bp has incurred, or is likely to incur, liability under CERCLA or similar state laws, including costs attributed to insolvent or unidentified parties. bp is also subject to claims for remediation costs and natural resource damages under CERCLA and other federal and state laws. CERCLA also requires the reporting on the releases of certain quantities of listed hazardous substances to designated government agencies.
- The Emergency Planning and Community Right-to-Know Act requires reporting on the storage, use and releases of certain quantities of listed extremely hazardous substances to designated government agencies.
- The Toxic Substances Control Act (TSCA) regulates bp's manufacture, import, export, sale and use of chemical substances and products. In addition, EPA has revised processes and procedures for prioritisation of existing chemicals for risk evaluation, assessment and management. Agency actions and announcements are monitored regularly to identify developments with potential impacts on chemical substances important to bp products and operations.
- The Occupational Safety and Health Act imposes workplace safety and health requirements on bp operations along with significant process safety management obligations, requiring continuous evaluation and improvement of operational practices to enhance safety and reduce workplace emissions at gas processing, refining and other regulated facilities.
- The Oil Pollution Act 1990 (OPA) imposes operational requirements, liability standards and other obligations governing the transportation of petroleum products in US waters. States may impose additional obligations. Alaska, West Coast and certain East Coast states impose additional requirements and stricter liability standards.
- The Outer Continental Shelf Land Act, the Mineral Leasing Act and other statutes give the Department of Interior (DOI) and the BLM authority to regulate operations and air emissions, including equipment and testing, on offshore and onshore operations on federal lands subject to DOI authority.
- The Endangered Species Act (ESA) and Marine Mammal Protection Act protect certain species' habitats from adverse human impacts by restricting operations or development at certain times and in certain places. In 2020, the US Fish and Wildlife Service published regulatory definitions impacting habitat designations under the ESA, but in June 2022, the Biden administration rescinded those definitions. The Biden administration rescission of those definitions could expand the geographic areas subject to habitat protections.

European Union

- The Industrial Emissions Directive (IED) 2010 provides the framework for granting permits for major industrial sites. A recently agreed revision of the IED could, once formally adopted and implemented, potentially set more stringent permitting requirements, and lead to a further tightening of emission limit values.
- The EU Registration, Evaluation Authorization and Restriction of Chemicals (REACH) Regulation 2006 requires registration of chemical substances manufactured in or imported into the EU, together with the submission of relevant hazard and risk data. REACH affects our manufacturing or trading/import operations in the EU. bp maintains compliance by checking whether imports are covered by the registrations of non-EU suppliers' representatives, preparing and submitting registration dossiers to cover new manufactured and imported substances, and updating previously submitted registrations as required.
- The Water Framework Directive (WFD) published in 2000 aims to protect the quantity and quality of ground and surface waters of the EU member states. The implementation in the EU member states is still ongoing, planned to be finalised by 2027. Future proceedings on the determination of pollutants/priority substances as well as environmental quality standards in line with the WFD may require additional compliance efforts and increased costs for managing freshwater withdrawals and discharges from bp's EU operations.
- The Corporate Sustainability Reporting Directive (CSRD) entered into force on 5 January 2023 introducing new requirements for companies with securities listed on an EU regulated market or which exceed a threshold for turnover derived in the EU, to include disclosures related to climate, the environment and wider sustainability issues. The CSRD also expands to in-scope entities the requirements introduced by the EU Taxonomy Regulation, to identify environmentally sustainable activities and then disclose metrics related to capital and operating expenditure and turnover associated with those activities. Disclosure requirements will be phased in from 2025, in respect of the 2024 financial year.

United Kingdom

- Following the UK's exit from the European Union, operative EU laws were retained in UK law by the European Union (Withdrawal) Act 2018 (EUWA). In June 2023, the Retained EU Law (Revocation and Reform) Act 2023 received Royal Assent. That Act allows for significant changes to the status, operation and content of retained EU law, including through amendments to the EUWA. However, the UK government has not issued a policy statement on how it intends to use these powers and therefore future amendments to and deviations from retained EU law including in respect of environmental matters are uncertain.
- Since the end of the transition period on 31 December 2020, there has been a parallel UK REACH regime which applies in Great Britain only, with EU REACH continuing to apply in Northern Ireland. UK REACH

contains equivalent requirements to EU REACH, although future developments and potential divergences are uncertain.

- The Environment Act 2021 comprises various key parts including governance, waste and resource efficiency, air quality and environmental recall, water, nature and biodiversity and conservation covenants. The governance parts include a comprehensive framework for legally binding environmental improvement targets; to establish a framework for future policy statements on environmental principles to protect the environment by making environmental considerations a key part of policy development process across government; and to establish the Office for Environmental Protection, an independent public body to have oversight of environmental matters. The UK government's first suite of environmental targets became law in January 2023, but these are not expected to have a material impact on bp.

Other countries and regions

Regulations governing the discharge of treated water have also been developed in countries outside of the US and EU including in Trinidad where bp commissioned a new wastewater treatment plant in 2020 to meet consent levels agreed with the regulators to apply relevant water discharge rules.

The Abidjan Convention, along with the Additional Protocol published in 2012, sets environmental quality standards for the discharge of chemicals to the marine environment. Mauritania and Senegal are both signatories to the Abidjan Convention. bp is currently constructing the offshore facilities to include produced water management systems to meet the environmental quality standards for our future gas operations in Mauritania and Senegal.

Environmental maritime regulations

bp's shipping operations are subject to extensive national and international regulations governing operations, training, pollution prevention, liability, and insurance. These include:

- Liability and spill prevention and planning requirements governing, among others, tankers, barges, and offshore facilities are imposed by OPA in US waters. OPA also mandates a levy on imported and domestically produced oil to fund oil spill responses. Some states, including Alaska, Washington, Oregon and California, impose additional liability for oil spills. Outside US territorial waters, bp shipping tankers are subject to international pollution prevention, liability, spill response and preparedness regulations developed through the UN's International Maritime Organization (IMO), including the International Convention on Civil Liability for Oil Pollution Damage, the International Convention for the Prevention of Pollution from Ships (MARPOL), the International Convention on Oil Pollution, Preparedness, Response and Co-operation, and the International Convention on Civil Liability for Bunker Oil Pollution Damage. In April 2010, the Hazardous and Noxious Substance (HNS) Protocol 2010 was adopted to address issues that have inhibited ratification of the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996. As at 31 December 2023, the HNS Convention had not entered into force.
- A global sulphur cap of 0.5% applies to marine fuel under MARPOL with a stricter 0.1% cap in environmentally sensitive areas. In order to comply, ships either need to consume low sulphur marine fuels, operate on alternative low sulphur fuels such as LNG or implement approved abatement technology to enable them to meet the low sulphur emissions requirements while continuing to use higher sulphur fuel. This global cap does not alter the lower 0.1% limits that apply in the sulphur oxides Emissions Control Areas established by the IMO.
- From 2023 all vessels over 400 gross tonnage became subject to IMO requirements as to energy efficiency design (EEXI) and the carbon intensity of operations (CII).
- Under EU legislation, maritime transport will be gradually brought into the scope of the EU ETS from 2024, applicable to all vessels over 5000 gross tonnage calling at EU ports regardless of a vessel's flag.
- Under the proposed Fuel EU Maritime Regulation, from 2025 ship owners will need to reduce the GHG intensity of their fuel use gradually over time, initially by 2% by 2030 and 80% by 2050.
- The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), aims to protect the marine environment of the North-East Atlantic. The OSPAR 2012 recommendation and guideline for the implementation of a risk-based approach to the management of produced water discharges from offshore installations in the North Sea supports a key goal of working towards eliminating harmful discharges. In 2020 the International Association of Oil and Gas Producers issued a report 'Oil And Gas Risk Based Assessment of Offshore Produced Water Discharges' which presents industry good practice and aims to broaden the understanding and acceptance of Risk Based Assessment (RBA) techniques internationally and improve consistency in the application of assumptions, levels of conservatism, and selection of risk endpoints.

To meet its financial responsibility requirements, bp shipping maintains marine oil pollution liability insurance in respect of its operated ships to a maximum limit of $1 billion for each occurrence through mutual insurance associations (P&I Clubs), although there can be no assurance that a spill would necessarily be adequately covered by insurance or that liabilities would not exceed insurance recoveries.

International trade sanctions

During the period covered by this report, non-US subsidiaries, or other non-US entities of bp, conducted limited activities in, or with persons from, certain countries identified by the US Department of State as State Sponsors of Terrorism or otherwise subject to US, EU and UK sanctions (Sanctioned Countries). In 2023, sanctions restrictions were insignificant to the group's financial condition and results of operations. bp monitors its activities with Sanctioned Countries, persons from Sanctioned Countries and individuals and companies subject to US, EU and UK sanctions and seeks to comply with applicable sanctions laws and regulations.

bp has a 29.99% interest in and operates the Shah Deniz field in Azerbaijan (Shah Deniz), has a 29.99% interest in and performs some operations for a related gas pipeline entity, South Caucasus Pipeline Company Limited (SCPC), and has a 23.99% non-operating interest in a related gas marketing entity, Azerbaijan Gas Supply Company Limited (AGSC). Naftiran Intertrade Co. Limited and NICO SPV Limited (collectively, NICO) have a 10% non-operating interest in each of Shah Deniz and SCPC and an 8% non-operating interest in AGSC. Shah Deniz, SCPC and AGSC continue in operation as they were excluded from the application of US sanctions and fall within the exception for certain natural gas projects under Section 603 of the Iran Threat Reduction and Syria Human Rights Act of 2012 (ITRA).

On 3 December 2018 bp entered into an agreement with, among others, SOCAR and NICO pursuant to which SOCAR pays to BP Exploration (Shah Deniz) Limited (BPXSD), as the Shah Deniz operator, compensation for NICO's waiver of its right to lift its share of Shah Deniz condensate. Such amounts are used to cover cash calls to NICO in respect of operating costs due from NICO to BPXSD. On 12 February 2022, OFAC issued a renewed licence in relation to these arrangements which expires on 15 April 2024. An application for a further renewal has been submitted and is subject to OFAC's approval.

Following the imposition in 2011 of further US and EU sanctions against Syria, bp terminated all sales of crude oil and petroleum products into Syria, though bp continues to supply aviation fuel to non-governmental Syrian resellers outside of Syria.

bp has a joint arrangement in Cuba which imports, manufactures, markets and sells lubricants.

During 2014, the US and the EU imposed sanctions on certain sectors of the Russian economy (energy, finance and defence/military) and on certain individuals and entities, including Rosneft. These sectoral sanctions include restrictions on the provision of financial assistance, technical assistance, and services in relation to exploration and production activity in deepwater, shale, and offshore Arctic.

Additional US sanctions have been imposed since 2014, broadening the scope of US sanctions on Russia-related activity to include certain international deepwater, shale, and offshore Arctic projects as well as the provision of goods and services for Russian energy export pipelines.

In response to Russia's military action in Ukraine in 2022, the US, EU, UK and many other countries have imposed broad economic and trade

★ See glossary on **page 373**

sanctions. The scope of these sanctions includes restrictions on dealing with designated individuals and entities; restrictions on the Russian financial sector; blocking economic activity in certain areas of Ukraine not controlled by the Ukrainian government; prohibitions in relation to investment in Russia; prohibitions and restrictions relating to Russian origin oil and oil products; prohibitions and restrictions relating to Russian origin iron and steel products, prohibitions and restrictions relating to Russian origin metals, prohibitions and restrictions on the provision of certain legal advisory services, prohibitions and restrictions in relation to transportation, including shipping and aircraft; trade controls limiting the purchase and import of a wide range of goods from Russia, and export controls limiting the export of a wide range of goods and technical assistance to Russia.

In response, Russia has implemented counter-sanctions including restrictions on the divestment from Russian assets by foreign investors and restrictions on the payments of dividends to certain foreign shareholders, including those based in the UK, requiring such dividends to be paid in roubles into restricted bank accounts and a requirement for approval of the Russian government for transfers from any such bank accounts out of Russia.

The bp group does not source any materials directly from Russia, except deliveries of LNG from Russian sources under a small number of contracts predating the Russia and Ukraine conflict in compliance with all applicable sanctions. bp has also discontinued sales of our products to customers in Russia. Such sales were not material to the bp group. As a result, outside of our shareholding in Rosneft and related businesses in Russia, direct impacts due to exposure to Russia have not been material and are not expected to be material in the future. bp continues to monitor Russia related sanctions and other international restrictions for any impacts on our businesses and the exit of our shareholding in Rosneft. See page 173 for further information in relation to bp's shareholding in Rosneft.

bp maintains bank accounts and has registered and paid required fees to maintain registrations of patents and trademarks in certain Sanctioned Countries.

bp has equity interests in non-operated joint arrangements with air fuel sellers, resellers, and fuel delivery services around the world. From time to time, the joint arrangement operator or other partners may sell or deliver fuel to airlines from Sanctioned Countries or flights to Sanctioned Countries, without bp's involvement.

bp has no control over the activities non-controlled associates may undertake in Sanctioned Countries or with persons from Sanctioned Countries.

Disclosure pursuant to ITRA Section 219

To our knowledge, none of bp's activities, transactions or dealings are required to be disclosed pursuant to ITRA Section 219, with the following possible exceptions.

In 2023, payments in relation to tax with an aggregate US dollar equivalent value of approximately $27,000 were paid from a bp trust account held with Tadvin Co. to Iranian public entities on behalf of BP Iran. No gross revenues or net profits are attributable to BP Iran's activities.

In February 2023, we identified that our European Fleet Business had issued 10 fuel cards to the embassy and consulate of Iran in both Germany and Austria. Fuel cards enable holders to acquire goods and services at bp retail sites and at retail sites operated by acceptance partners in Europe without payment in cash. Goods and services purchased with fuel cards are invoiced on a monthly or bi-monthly basis. As disclosed in the *bp Annual Report and Form 20-F 2022*, in 2023 the total aggregate invoiced amount was approximately $2,700. bp has terminated the cards and related accounts.

Material contracts

On 4 April 2016 the district court approved the Consent Decree among BP Exploration & Production Inc., BP Corporation North America Inc., BP p.l.c., the United States and the states of Alabama, Florida, Louisiana, Mississippi and Texas (the Gulf states) which fully and finally resolved any and all natural resource damages (NRD) claims of the United States, the Gulf states, and their respective natural resource trustees and all Clean Water Act (CWA) penalty claims, and certain other claims of the United States and the Gulf states.

Concurrently, the definitive Settlement Agreement that bp entered into with the Gulf states (Settlement Agreement) with respect to State claims for economic, property and other losses became effective.

bp has filed the Consent Decree and the Settlement Agreement as exhibits to its *Annual Report and Form 20-F 2020* filed with the SEC. For further details of the Consent Decree and the Settlement Agreement, see Legal proceedings in *bp Annual Report and Form 20-F 2015*.

Property, plant and equipment

bp has freehold and leasehold interests in real estate and other tangible assets in numerous countries, but no individual property is significant to the group as a whole. For more on the significant subsidiaries★ of the group at 31 December 2023 and the group percentage of ordinary share capital see Financial statements – Note 37. For information on significant joint ventures★ and associates★ of the group see Financial statements – Notes 16 and 17.

Related party transactions

Transactions between the group and its significant joint ventures and associates are summarized in Financial statements – Note 16 and Note 17. In the ordinary course of its business, the group enters into transactions with various organizations with which some of its directors or executive officers are associated. Except as described in this report, the group did not have any material transactions or transactions of an unusual nature with, and did not make loans to, related parties in the period commencing 1 January 2023 to 16 February 2024.

Corporate governance practices

In the US, bp ADSs are listed on the New York Stock Exchange (NYSE). The significant differences between bp's corporate governance practices as a UK company and those required by NYSE listing standards for US companies are listed as follows:

Independence

As set out on page 88, bp has adopted separate terms of reference for the board and each of its committees as part of its corporate governance framework. The terms of reference for the board and each of its committees are reviewed annually and were last updated with effect from 1 December 2021, excluding the audit committee terms of reference which were updated on 22 July 2022. The terms of reference reflect the UK Corporate Governance Code 2018 approach to corporate governance. As such, the way in which bp makes determinations of directors' independence differs from the NYSE approach.

bp's corporate governance framework requires that all non-executive directors be determined by the board to be 'independent in character and judgement and free from any business or other relationship which could materially interfere with the exercise of their judgement'. The bp board has determined that, in its judgement, all of the non-executive directors are independent. In doing so, however, the board did not explicitly take into consideration the independence requirements outlined in the NYSE's listing standards.

Committees

bp has a number of board committees that are broadly comparable in purpose and composition to those required by NYSE rules for domestic US companies. For instance, bp has a remuneration (rather than a compensation) committee. bp also has an audit committee, which NYSE rules require for both US companies and foreign private issuers. These committees are composed solely of non-executive directors whom the board has determined to be independent, in the manner described above.

Each committee operates under its own terms of reference together with a set of terms applicable to all the committees (see the board committee reports on pages 94-132and bp.com/governance).

Under US securities law and the listing standards of the NYSE, bp is required to have an audit committee that satisfies the requirements of Rule 10A-3 under the Exchange Act and Section 303A.06 of the NYSE Listed

Company Manual. bp's audit committee complies with these requirements. The bp audit committee does not have direct responsibility for the appointment, reappointment or removal of the independent auditors. Instead, it follows the UK Companies Act 2006 and the UK Corporate Governance Code 2018 by making recommendations to the board on these matters for it to put forward for shareholder approval at the AGM.

One of the NYSE's additional requirements for the audit committee states that at least one member of the audit committee is to have 'accounting or related financial management expertise'. The board determined that Tushar Morzaria possesses such expertise and also possesses the financial and audit committee experiences set forth in both the UK Corporate Governance Code 2018 and SEC rules (see Audit committee report on page 98). Mr Morzaria is the audit committee financial expert as defined in Item 16A of Form 20-F.

Summary of terms of reference for audit committee and remuneration committee

The audit committee's full terms of reference are available on our website at bp.com/governance. A summary of the committee's key responsibilities is provided below:

- Monitor and critically assess bp's financial statements and financial information, including the integrity of the financial reporting and related processes, context in which statements are made, compliance with relevant legal and regulatory requirements and financial reporting standards, including the Task Force on Climate-related Financial Disclosures (TCFD).
- Assess the going concern assumption and the longer-term viability statement as to bp's ability to continue to operate and meet its liabilities.
- Review and challenge the application and appropriateness of significant accounting policies and financial reporting judgements.
- Evaluate the risk to quality and effectiveness of the financial reporting process and, where requested by the board, advise whether the annual report and accounts are fair, balanced and understandable.
- Review the affordability of distributions to shareholders.
- Oversee the appointment, remuneration, independence and performance of the external auditor and the integrity of the audit process as a whole, including the engagement of the external auditor to supply non-audit services to bp.
- Review the effectiveness of the internal audit function, bp's internal financial controls and its systems of internal control and risk management.
- Monitor the principal risks allocated to the committee by the board and review the mitigations proposed by management in respect of risks associated with bp internal financial controls and reporting responsibilities and such emerging risks that may fall within scope.
- Review the systems in place to enable those who work for bp to raise concerns about improprieties in financial reporting or other issues, and for those matters to be investigated.

The remuneration committee's full terms of reference are available on our website at bp.com/governance. A summary of the committee's key responsibilities is provided below:

- Recommend to the board the remuneration principles and policies for the executive directors and leadership team while considering remuneration and related policies for the employees below the board and leadership team.
- Set and approve the terms of engagement, remuneration, benefits and termination of employment for the executive directors, leadership team, chief internal auditor and the company secretary in accordance with the policy.
- Prepare the annual remuneration report to shareholders to outline policy implementation.
- Approve the principles of any equity plan that requires shareholder approval.
- Ensure termination terms and payments to executive directors and the leadership team are appropriate and fair.
- Receive and consider regular updates on workforce views and engagement initiatives related to remuneration, insights and data from pay ratios and potential pay gaps as appropriate.
- Maintain appropriate dialogue with shareholders on remuneration matters.

Shareholder approval of equity compensation plans

The NYSE rules for US companies require that shareholders must be given the opportunity to vote on all equity-compensation plans and material revisions to those plans. bp complies with UK requirements that are similar to the NYSE rules. The board, however, does not explicitly take into consideration the NYSE's detailed definition of what are considered 'material revisions'.

Code of ethics

The company has adopted a code of ethics for its chief executive officer, chief financial officer, SVP accounting, reporting and control and SVP internal audit whose roles are equivalent to the SEC roles as required by the provisions of Section 406 of the Sarbanes-Oxley Act of 2002 and the rules issued by the SEC. There have been no waivers from the code of ethics relating to any officers. A copy of the code of ethics can be found at bp.com/codeofethics.

The NYSE rules require that US companies adopt and disclose a code of business conduct and ethics for directors, officers and employees. bp has adopted a code of conduct, which applies to all employees, officers and members of the board. This was updated and published in January 2023. In addition, bp has adopted a code of ethics as described above for the chief executive officer, chief financial officer, SVP accounting, reporting and control and SVP internal audit as required by the SEC. bp considers that these codes and policies address the matters specified in the NYSE rules for US companies. During 2021, the board adopted a diversity policy, which requires it to encourage a diverse and inclusive working environment in the boardroom, where everyone is accepted, valued and receives fair treatment according to their different needs and situations without discrimination or prejudice. The policy was reviewed by the board in 2022, and amendments were made to reflect regulatory changes and market practice. The updated policy was then approved and published in February 2023.

Controls and procedures

Evaluation of disclosure controls and procedures

The company maintains 'disclosure controls and procedures', as such term is defined in Exchange Act Rule 13a-15(e), that are designed to ensure that information required to be disclosed in reports the company files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms, and that such information is accumulated and communicated to management, including the company's group chief executive and chief financial officer, as appropriate, to allow timely decisions regarding required disclosure.

In designing and evaluating our disclosure controls and procedures, our management, including the group chief executive and chief financial officer, recognize that any controls and procedures, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud within the company, if any, have been detected. Further, in the design and evaluation of our disclosure controls and procedures our management necessarily was required to apply its judgement in evaluating the costs and benefits of possible control and procedure design options. Also, we have investments in unconsolidated entities. As we do not control these entities, our disclosure controls and procedures with respect to such entities are necessarily substantially more limited than those we maintain with respect to our consolidated subsidiaries★. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. The company's disclosure controls and procedures have been designed to meet, and management believes that they meet, reasonable assurance standards.

The company's management, with the participation of the company's group chief executive and chief financial officer, has evaluated the effectiveness of the company's disclosure controls and procedures pursuant to Exchange Act Rule 13a-15(b) as of the end of the period covered by this annual report. Based on that evaluation, the group chief executive and chief financial officer have concluded that the company's disclosure controls and procedures were effective at a reasonable assurance level.

★ See glossary on **page 373**

Management's report on internal control over financial reporting

Management of bp is responsible for establishing and maintaining adequate internal control over financial reporting. bp's internal control over financial reporting is a process designed under the supervision of the principal executive and financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of bp's financial statements for external reporting purposes in accordance with IFRS.

As of the end of the 2023 fiscal year, management conducted an assessment of the effectiveness of internal control over financial reporting in accordance with the criteria in the UK Financial Reporting Council's Guidance on Risk Management, Internal Control and Related Financial and Business Reporting relating to internal control over financial reporting. Based on this assessment, management has determined that bp's internal control over financial reporting as of 31 December 2023 was effective.

Management's assessment of the effectiveness of internal control over financial reporting excluded TravelCenters of America Inc. (TCA), which was acquired on 15 May 2023. TCA's financial statements constitute 2.1% and 1.5% of net and total assets respectively, 2.8% of revenues, and 4% of net income of the consolidated financial statement amounts as of and for the year ended 31 December 2023. This exclusion is in accordance with the general guidance issued by the SEC that an assessment of a recent business combination may be omitted from management's report on internal control over financial reporting in the first year of consolidation.

The company's internal control over financial reporting includes policies and procedures that pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of assets; provide reasonable assurances that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS and that receipts and expenditures are being made only in accordance with authorizations of management and the directors of bp; and provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of bp's assets that could have a material effect on our financial statements. bp's internal control over financial reporting as of 31 December 2023 has been audited by Deloitte LLP, an independent registered public accounting firm, as stated in their report appearing on page 163 of *bp Annual Report and Form 20-F 2023*.

Changes in internal control over financial reporting

There were no changes in the group's internal control over financial reporting that occurred during the period covered by the Form 20-F that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

Cyber security

Governance

The board oversees bp's internal control and risk management framework. The board is supported by the safety and sustainability committee which oversees cyber security risk and received reports from bp's chief information security officer (CISO) on cyber security incidents at every committee meeting in 2023, including information on bp's response to incidents. This allows an ongoing assessment by the committee of the effectiveness of bp's overall cyber security programme. A session is held once a year to review bp's roadmap and progress for addressing cyber security risk. Read more in the safety and sustainability committee report on page 103.

At management level, assessment and management of material risks from cyber security threats is led by bp's executive vice president of innovation & engineering (I&E), a member of bp's leadership team with deep experience in bp's engineering and operations functions, with support from bp's CISO, who has over 20 years of experience in the information technology industry. bp's digital safety operational risk committee brings together additional senior members of bp's digital leadership team to assist in ensuring that cyber security risks across bp are identified, understood, accurately quantified and are managed in accordance with bp's internal controls framework.

Risk management and strategy

bp has implemented a threat-focused strategy to assess cyber security risks and protect against, detect, respond to, and recover from cyber attacks. bp maintains internal teams focused on cyber security intelligence and emergency response to monitor the external threat landscape and the threats to bp's IT and operational technology infrastructure. bp partners with third-party specialists to augment its in-house capabilities as necessary. bp has a defined protocol for cyber incident notification based on severity and bp's internal cyber security teams brief the CISO, I&E EVP, other senior leadership and relevant board and management committees about incidents on an as needed basis.

Cyber security risk management is integrated into bp's overall risk management process. bp's entities are required to identify, assess and report key risks, including cyber security risks, to relevant members of senior leadership. bp maintains additional procedures to manage cyber security risks related to third-party service providers, including conducting information security assessments for certain providers, providing relevant trainings for bp employees, and maintaining information security requirements for suppliers.

Our business strategy, results of operations and financial condition have not been materially affected by risks from cyber security threats, including as a result of previously identified cyber security incidents. For more information on our cyber security related risks, see Risk Factors (pages 77-79).

Principal accountant's fees and services

The audit committee has established policies and procedures for the engagement of the independent registered public accounting firm, Deloitte LLP, to render audit and certain assurance services. The policy provides for pre-approval by the audit committee of specifically defined audit, audit related, non-audit and other services that are not prohibited by regulatory or other professional requirements. Deloitte is engaged for these services when its expertise and experience of bp are important. Most of this work is of an audit nature. The committee regularly reviews the policy, including in 2022, when it was updated to remove restrictions on EY following bp's announcement on 27 February 2022 of its intention to exit its interests in Rosneft and capture additional detail for the processes applicable to separately listed bp entities.

Under the policy, pre-approval is given for specific services within the following categories: i) audit-related services, such as those required by law or where the auditor is best placed to undertake such work on similar terms, ii) non-audit services required by law, such as reporting required by a regulatory authority, and iii) other services, such as additional assurance or updates on applicable law and accounting standards. bp operates a two-tier system for audit and non-audit services. For audit-related services, the audit committee has a pre-approved aggregate level, within which specific work may be approved by management. Non-audit services are pre-approved for management to authorize per individual engagement, but above a defined level must be approved by the chair of the audit committee or the full committee. The audit committee has delegated to the chair of the audit committee authority to approve permitted services provided that any decisions are reported to the committee at its next scheduled meeting. Any proposed service not included in the approved service list must be approved in advance of commencing the engagement by the audit committee chair or the full audit committee depending on the level of fee payable.

The audit committee evaluates the performance of the auditor each year. The audit fees payable to Deloitte are reviewed by the committee in the context of other global companies for cost effectiveness. The committee keeps under review the scope and results of audit work and the independence and objectivity of the auditor. External regulation and bp policy requires the auditor to rotate its lead audit partner every five years. See Financial statements – Note 36 and Audit committee report on page 98 for details of fees for services provided by the auditor.

Additional Directors' report disclosures

This section of *bp Annual Report and Form 20-F 2023* forms part of the Directors' report. Certain information has been included in the Strategic report that would otherwise be required to be disclosed in the Directors' report, as noted below.

Indemnity provisions

In accordance with bp's Articles of Association, on appointment each director is granted an indemnity from the company in respect of liabilities incurred as a result of their office, to the extent permitted by law. These indemnities were in force throughout the financial year and at the date of this report. In respect of those liabilities for which directors may not be indemnified, the company maintained a directors' and officers' liability insurance policy throughout 2023. During the year, a review of the terms and scope of the policy was undertaken as part of the annual renewal. Although their defence costs may be met, neither the company's indemnity nor insurance provides cover in the event that the director is proved to have acted fraudulently or dishonestly. Certain subsidiaries★ are trustees of the group's pension schemes. Each director of these subsidiaries is granted an indemnity from the company in respect of liabilities incurred as a result of such a subsidiary's activities as a trustee of the pension scheme, to the extent permitted by law. These indemnities were in force throughout the financial year and at the date of this report.

Financial risk management objectives and policies

The disclosures in relation to financial risk management objectives and policies, including the policy for hedging, are included in How we manage risk on pages 73-76, Liquidity and capital resources on page 340 and Financial statements – Notes 29 and 30.

Exposure to price risk, credit risk, liquidity risk and cash flow risk

The disclosures in relation to exposure to price risk, credit risk, liquidity risk and cash flow risk are included in Financial statements – Notes 29 and 30.

Important events since the end of the financial year

Disclosures of the particulars of the important events affecting bp which have occurred since the end of the financial year are included in the Strategic report as well as in other places in the Directors' report.

Likely future developments in the business

An indication of the likely future developments in the business of the company is included in the Strategic report.

Research and development

Indications of our activities in the field of research and development are provided throughout the Strategic report and the Directors' report. See also pages 16 and 197 for our expenditure on research and development.

Branches

As a global group our interests and activities are held or operated through subsidiaries, branches, joint arrangements★ or associates★ established in – and subject to the laws and regulations of – many different jurisdictions.

Employees

Disclosures in respect of how the directors have engaged with employees and had regard to their interests are included in Stakeholder engagement on pages 92-93.

The disclosures concerning policies in relation to the employment of disabled persons and employee involvement are included in Sustainability – our people on pages 70-72.

Employee share schemes

Certain shares held as a result of participation in some employee share plans carry voting rights. Voting rights in respect of such shares are exercisable via a nominee. Dividend waivers are in place in respect of unallocated shares held in employee share plan trusts.

Suppliers, customers and others

Disclosures in respect of how the directors have engaged with suppliers, customers and others in business relationships with the company are included in Stakeholder engagement on pages 92-93.

Change of control provisions

On 5 October 2015, the United States lodged with the district court in MDL 2179 a proposed Consent Decree between the United States, the Gulf states, BP Exploration & Production Inc., BP Corporation North America Inc. and BP p.l.c., to fully and finally resolve any and all natural resource damages claims of the United States, the Gulf states and their respective natural resource trustees and all Clean Water Act penalty claims, and certain other claims of the United States and the Gulf states. Concurrently, bp entered into a definitive Settlement Agreement with the five Gulf states (Settlement Agreement) with respect to state claims for economic, property and other losses. On 4 April 2016, the district court approved the Consent Decree, at which time the Consent Decree and Settlement Agreement became effective. The federal government and the Gulf states may jointly elect to accelerate the payments under the Consent Decree in the event of a change of control or insolvency of BP p.l.c., and the Gulf states individually have similar acceleration rights under the Settlement Agreement. For further details of the Consent Decree and the Settlement Agreement, see Legal proceedings in *BP Annual Report and Form 20-F 2015*.

Political donations, expenditure and contributions

Disclosures in relation to political donations, expenditure and contributions are included on page 72.

Greenhouse gas emissions, energy consumption and energy efficiency

Disclosures in relation to greenhouse gas emissions, energy consumption and energy efficiency are included in Sustainability on pages 51-52.

Disclosures required under Listing Rule 9.8.4R

The information required to be disclosed by Listing Rule 9.8.4R can be located as set out below:

Information required	Page
(1) Amount of interest capitalized	197
(2) – (4)	Not applicable
(5), (6) Waiver of director emoluments	128
(7) – (11)	Not applicable
(12), (13) Dividend waivers	361
(14)	Not applicable

Cautionary statement

In order to utilize the 'safe harbor' provisions of the United States Private Securities Litigation Reform Act of 1995 (the 'PSLRA') and the general doctrine of cautionary statements, bp is providing the following cautionary statement.

This document contains certain forecasts, projections and forward-looking statements - that is, statements related to future, not past, events and circumstances - with respect to the financial condition, results of operations and businesses of bp and certain of the plans and objectives of bp with respect to these items. These statements may generally, but not always, be identified by the use of words such as 'will', 'expects', 'is expected to', 'aims', 'should', 'may', 'objective', 'is likely to', 'intends', 'believes', 'anticipates', 'plans', 'we see' or similar expressions. In particular, among other statements, (i) certain statements in the Chair's letter (pages 4-5), Chief executive officer's letter (pages 6-7),the Strategic report (inside cover and pages 1-80), Additional disclosures (pages 335-362) and Shareholder information (pages 363-372), including but not limited to statements under the headings 'Energy Outlook', 'Our strategy in action', 'Consistency with the Paris goals' 'Our business model', 'Progress against our strategy', 'Our financial frame', '2024 guidance' and 'Our investment process' and including but not limited to statements regarding: plans and expectations relating to business, financial performance, results of operations, cash flow, capital expenditure, allocation of capital expenditure and bp's ability to maintain a robust cash position; plans and expectations regarding bp's financial frame, working capital, operating cash flow (and its ability to cover capital expenditure and shareholder distributions including the dividend and share buybacks), return on average capital employed, liquidity, capital discipline, credit rating, future shareholder distributions, amount or timing of payments related to divestment and other proceeds, net debt, future dividend payments and share buybacks; plans and expectations relating to bp's investment process and capital investment, including future capital investment allocation, expected IRR, access to capital and the restructuring of certain investments; plans and expectations relating to bp's intra-group funding and liquidity arrangements; plans and expectations relating to bp's ability to meet contractual obligations; expectations regarding inflation, oil and gas prices, price volatility, refining margins and price assumptions; plans and expectations relating to risk, including risk management processes and climate-related risks; plans and expectations regarding bp's transition growth engines, including plans to increase capital investment in these growth engines; plans and expectations regarding bp's oil and gas business, including related investment plans, oil and gas production targets, and divestment plans; plans and expectations regarding underlying replacement cost profit before interest, tax, depreciation and amortization, ROACE, adjusted EBITDA and adjusted EBIDA per share; plans, expectations and projections regarding bp's oil and gas resources and reserves; plans and expectations regarding bp's convenience and mobility business, including earnings, the development of EV charging, and the impact of the acquisition of TravelCenters of America; bp's aims related to sustainable aviation fuel; bp's plans and expectations regarding renewable power, including aims to expand renewable gas, wind and solar capacity, aims to develop hydrogen production and export, green and blue hydrogen, e-fuels, EV charging and power trading and expectations related to bp's wind and solar projects; bp's 2025 targets and 2030 aims relating to resilient hydrocarbons (including upstream unit production costs, upstream production, bp-operated upstream plant reliability, bp-operated refining availability, biofuels production, biogas supply volumes and LNG portfolio), convenience and mobility (including customer touchpoints per day, strategic convenience sites and electric vehicle charge points) and low carbon energy (including net hydrogen production, developed renewables to final investment decision and net installed renewables capacity); plans and expectations in relation to announced acquisitions and divestments including the outcome of any applicable third party approvals and timing of completion; bp's plans and expectations related to the energy transition (including its scenario analysis), climate change, sustainability, greenhouse gas emissions, water use and the replenishment of fresh water, bp's resilience across different climate scenarios, and bp's decarbonization and net zero aims and targets, its targets related to methane and carbon intensity of bp's products and the transition to a lower carbon economy and energy system; expectations relating to the effects of the Russia-Ukraine war including plans and expectations regarding impacts on bp; expectations regarding future legislative or regulatory action and its impact on bp, including regulatory action related to climate change and inflation and bp's plans regarding compliance with such actions; plans and expectations regarding bp's leadership team, board composition and workforce, including targets related to workforce recruitment, incentives and diversity; expectations regarding the costs of environmental restoration, remediation and abatement programmes; expectations regarding the future value of assets; plans and expectations regarding projects, joint ventures, partnerships, agreements and memoranda of understanding with governments, commercial entities and other third party partners; expectations regarding contingent liabilities, legal and trial proceedings, court decisions, potential investigations and civil actions by regulators, government entities and/or other entities or parties, and the timing and potential impact of such proceedings, settlement agreements relating to such proceedings and bp's intentions in respect thereof; plans and expectations regarding relationships with governments, customers, partners, suppliers, communities and key stakeholders; expectations regarding upstream production, total capital expenditure, depreciation, depletion and amortization, divestments and other proceeds, Gulf of Mexico oil spill payments, other businesses & corporate underlying annual charge, and the effective tax rate and the underlying effective tax rate; expectations that the majority of bp's existing upstream oil and gas properties will start decommissioning within the next two decades; expectations regarding fulfillment of existing delivery commitments for oil and gas; plans and expectations relating to major project start-ups; plans and expectations relating to launchpad; plans and expectations regarding bp ventures and its investments; plans and expectations relating to bp's refineries, including Solomon refining availability and net cash margins; plans and expectations relating to bp's research and development spend; plans and expectations regarding operations and safety; and (ii) certain statements in Corporate governance (pages 81-104) and the Directors' remuneration report (pages 105-132) and 'Other disclosures' (page 133) with regard to: the anticipated future composition of the board of directors and the effects thereof, the board's goals and areas of focus; plans and expectations regarding the expected impact of the mergers and acquisitions pipeline and capital expenditures (including the impact of bp's entry in the German offshore wind market); plans and expectations relating to the induction and training of new directors; plans and expectations regarding the diversity of the board and senior management; plans and expectations regarding directors' and senior management's share ownership and remuneration; plans regarding the governance and remuneration processes, including base pay and base salary increases and adjustments, performance share plan, various policies, updates to certain targets, measures and metrics relevant to remuneration and determination of bonuses and share plans, pension allowances and contributions, the vesting of shares under employee share plans, benefits and bonuses; plans relating to the societies in which bp operates and to maintain a strong reputation globally; and goals, activities and areas of focus of board committees, are all forward-looking in nature; plans and expectations regarding auditor reappointment and independence.

By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will or may occur in the future and are outside the control of bp.

Actual results or outcomes, including the fair value of bp's Rosneft shareholding, may differ materially from those expressed in such statements, depending on a variety of factors, including: the extent and duration of the impact of current market conditions including the volatility of oil prices, the effects of bp's intention to exit its shareholding in Rosneft, overall global economic and business conditions impacting bp's business and demand for bp's products as well as the specific factors identified in the discussions accompanying such forward-looking statements; changes in consumer preferences and societal expectations; the pace of development and adoption of alternative energy solutions; developments in policy, law, regulation, technology and markets, including societal and investor sentiment related to the issue of climate change; the receipt of relevant third party and/or regulatory approvals; the timing and level of maintenance and/or turnaround activity; the timing and volume of refinery additions and outages; the timing of bringing new fields onstream; the timing, quantum and nature of certain acquisitions and divestments; future levels of industry product supply, demand and pricing, including supply growth in North America and continued base oil and additive supply shortages; OPEC+ quota restrictions; PSA and TSC effects; operational and safety problems; potential lapses in product quality; economic and financial market conditions generally or in various countries and regions; political stability and economic growth in relevant areas of the world; changes in laws and governmental regulations and policies, including related to climate change; changes in social attitudes and customer preferences; regulatory or legal actions including the types of enforcement action pursued and the nature of remedies sought or imposed; the actions of prosecutors, regulatory authorities and courts; delays in the processes for resolving claims; amounts ultimately payable and timing of payments relating to the Gulf of Mexico oil spill; exchange rate fluctuations; development and use of new technology; recruitment and retention of a skilled workforce; the success or otherwise of partnering; the actions of competitors, trading partners, contractors, subcontractors, creditors, rating agencies and others; bp's access to future credit resources; business disruption and crisis management; the impact on bp's reputation of ethical misconduct and non-compliance with regulatory obligations; trading losses; major uninsured losses; the possibility that international sanctions or other steps taken by competent authorities or any other relevant persons may impact bp's ability to sell its interests in Rosneft, or the price for which it could sell such interests; the actions of contractors; natural disasters and adverse weather conditions; changes in public expectations and other changes to business conditions; wars and acts of terrorism; cyber-attacks or sabotage; and other factors discussed elsewhere in this report including under Risk factors (pages 77-79). In addition to factors set forth elsewhere in this report, those set out above are important factors, although not exhaustive, that may cause actual results and developments to differ materially from those expressed or implied by these forward-looking statements.

Statements regarding competitive position

Statements referring to bp's competitive position are based on the company's belief and, in some cases, rely on a range of sources, including investment analysts' reports, independent market studies and bp's internal assessments of the relevant market based on publicly available information about the financial results and performance of market participants.

Shareholder information

Share prices and listings

Markets and market prices

The primary market for the company's ordinary shares (trading symbol 'BP'), 8% cumulative first preference shares (trading symbol 'BP.A') and 9% cumulative second preference shares (trading symbol 'BP.B') is the London Stock Exchange (LSE). The company's ordinary shares are a constituent element of the Financial Times Stock Exchange 100 Index.

In the US, the company's securities are listed and traded on the New York Stock Exchange (NYSE) in the form of ADSs (trading symbol 'BP'), for which JPMorgan Chase Bank, N.A. is the depositary (the Depositary) and transfer agent. The Depositary's principal office is 383 Madison Avenue, Floor 11, New York, NY, 10179, US. Each ADS represents six ordinary shares. ADSs are evidenced by American depositary receipts (ADRs), which may be issued in either certificated or book entry form.

The company's ordinary shares are also traded in the form of a global depositary certificate representing the company's ordinary shares on the Frankfurt, Hamburg and Düsseldorf Stock Exchanges.

On 16 February 2024, 731,514,905 ADSs (equivalent to approximately 4,389,089,430 ordinary shares or some 25.79% of the total issued share capital, excluding shares held in treasury) were outstanding and were held by approximately 62,639 ADS holders. Of these, about 61,911 had registered addresses in the US at that date. One of the registered holders of ADSs represents approximately 1,369,679 underlying holders.

On 16 February 2024, there were approximately 200,279 ordinary shareholders. Of these shareholders, around 1,499 had registered addresses in the US and held a total of some 3,870,988 ordinary shares. On 16 February 2024, there were approximately 1,103 preference shareholders. Of these shareholders, around 14 had registered addresses in the US and held a total of some 2,773 preference shares.

Since a number of the ordinary shares and ADSs were held by brokers and other nominees, the number of holders in the US may not be representative of the number of beneficial holders or their respective country of residence.

Dividends

The company's current policy is to pay interim dividends on a quarterly basis on its ordinary shares.

Our policy is also to announce dividends for ordinary shares in US dollars and state an equivalent sterling dividend. Dividends on the company's ordinary shares will be paid in sterling and on the company's ADSs in US dollars. The rate of exchange used to determine the sterling amount equivalent is the average of the market exchange rates in London over the three business days prior to the sterling equivalent announcement date. The directors may choose to declare dividends in any currency provided that a sterling equivalent is announced. It is not the company's intention to change its current policy of announcing dividends on ordinary shares in US dollars.

Information regarding dividends announced and paid by the company on ordinary shares and preference shares is provided in the consolidated Financial statements – Note 10.

A Scrip Dividend Programme (Scrip Programme) was approved by shareholders in 2010 and was renewed for a further three years at the 2021 AGM. It enabled the company's ordinary shareholders and ADS holders to elect to receive dividends by way of new fully paid ordinary shares (or ADSs in the case of ADS holders) instead of cash. The operation of the Scrip Programme is always subject to the directors' decision to make the Scrip Programme offer available in respect of any particular dividend.

The company announced on 29 October 2019 and as part of all subsequent quarterly results announcements made since, that the board had suspended the Scrip Programme in respect of those quarterly dividends. The company does not expect to offer a scrip election for the foreseeable future. Ordinary shareholders and ADS holders (subject to certain exceptions) may be able to participate in dividend reinvestment plans. Any decisions with respect to future dividends will be made by the board of BP p.l.c. following the end of each quarter.

Future dividends will be dependent on future earnings, the financial condition of the group, the Risk factors set out on page 77 and other matters that may affect the business of the group set out in Our strategy on page 12 and in Liquidity and capital resources on page 340.

The quarterly dividend which is expected to be paid on 28 March 2024 in respect of the fourth quarter 2023 is 7.270 cents per ordinary share ($0.43620 per American Depositary Share (ADS)). The corresponding amount in sterling will be announced on 12 March 2024.

The following table shows dividends announced and paid by the company per ADS for the past five years.

Dividends per ADS[a]		March	June	September	December	Total
2019	UK pence	46.43	48.39	50.09	46.95	191.86
	US cents	61.50	61.50	61.50	61.50	246.00
2020	UK pence	48.94	50.05	24.26	23.50	146.75
	US cents	63.00	63.00	31.50	31.50	189.00
2021	UK pence	22.61	22.27	23.72	24.63	92.23
	US cents	31.50	31.50	32.76	32.76	128.52
2022	UK pence	24.96	26.13	31.01	29.64	111.74
	US cents	32.76	32.76	36.04	36.04	137.60
2023	**UK pence**	**33.30**	**31.85**	**34.39**	**34.42**	**133.97**
	US cents	**39.66**	**39.66**	**43.62**	**43.62**	**166.56**

a Dividends announced and paid by the company on ordinary and preference shares are provided in the consolidated Financial statements – Note 10.

There are no UK foreign exchange controls or other restrictions on the import or export of capital by, or on the payment of dividends to, non-resident holders of BP p.l.c. shares, or that materially affect the conduct of BP p.l.c's operations, other than restrictions applicable to certain countries and persons subject to UN, US, UK, or EU economic sanctions, to the extent these restrictions can be complied with in law.

Shareholder taxation information

This section describes the material US federal income tax and UK taxation consequences of owning ordinary shares or ADSs to a US holder who holds the ordinary shares or ADSs as capital assets for tax purposes. This section does not discuss tax consequences arising under the Medicare contribution tax on net investment income or the alternative minimum tax. It also does not apply inter alia to members of special classes of holders some of which may be subject to other rules, including: tax-exempt entities, life insurance companies, dealers in securities, traders in securities that elect a mark-to-market method of accounting for securities holdings, holders that, actually or constructively, hold 10% or more of the company's shares (as measured by voting power or value), holders that hold the shares or ADSs as part of a straddle or a hedging or conversion transaction, holders that purchase or sell the shares or ADSs as part of a wash sale for US federal income tax purposes, or holders whose functional currency is not the US dollar. In addition, if a partnership holds the shares or ADSs, the US federal income tax treatment of a partner will generally depend on the status of the partner and the tax treatment of the partnership and may not be described fully below.

A US holder is any beneficial owner of ordinary shares or ADSs that is for US federal income tax purposes (1) a citizen or resident of the US, (2) a US domestic corporation, (3) an estate whose income is subject to US federal income taxation regardless of its source, or (4) a trust if a US court can exercise primary supervision over the trust's administration and one or more US persons are authorized to control all substantial decisions of the trust.

This section is based on the tax laws of the United States, including the Internal Revenue Code of 1986, as amended, its legislative history, existing and proposed US Treasury regulations thereunder, published rulings and court decisions, and the taxation laws of the UK, all as currently in effect, as well as the income tax convention between the US and the UK that entered into force on 31 March 2003 (the Treaty). These laws are subject to change, possibly on a retroactive basis. This section further assumes that each obligation under the terms of the deposit agreement relating to bp ADSs and any related agreement will be performed in accordance with its terms.

For purposes of the Treaty and the estate and gift tax convention (the Estate Tax Convention) and for US federal income tax and UK taxation purposes, a holder of ADRs evidencing ADSs will be treated as the owner of the company's ordinary shares represented by those ADRs. Exchanges of ordinary shares for ADRs and ADRs for ordinary shares generally will not be subject to US federal income tax or to UK taxation other than stamp duty or stamp duty reserve tax, as described below.

Investors should consult their own tax advisor regarding the US federal, state and local, UK and other tax consequences of owning and disposing of ordinary shares and ADSs in their particular circumstances, and in particular whether they are eligible for the benefits of the Treaty in respect of their investment in the shares or ADSs.

Taxation of dividends

UK taxation

Under current UK taxation law, no withholding tax will be deducted from dividends paid by the company, including dividends paid to US holders. A shareholder that is a company resident for tax purposes in the UK or trading in the UK through a permanent establishment generally will not be taxable in the UK on a dividend it receives from the company. A shareholder who is an individual resident for tax purposes in the UK is subject to UK tax on dividends received from the company, including dividends received under the dividend reinvestment plan (DRIP) for ordinary shareholders, that are in excess of the annual dividend allowance.

For 2023/24 the dividend allowance is £1,000 which means there is no UK tax due on the first £1,000 of dividends received. Dividends above this level are subject to tax at 8.75% for basic tax payers, 33.75% for higher rate tax payers and 39.35% for additional rate tax payers.

Although the first £1,000 of dividend income is not subject to UK income tax, it does not reduce the total income for tax purposes. Dividends within the dividend allowance still count towards basic or higher rate bands, and may therefore affect the rate of tax paid on dividends received in excess of the £1,000 allowance. For instance, if an individual has an annual gross salary of £50,000 and also receives a dividend of £12,000 they will be subject to the following scenario. The individual's personal allowance and the basic rate tax band will be used up by the gross salary. The remaining part of the salary and the whole of the dividend will be subject to tax at the higher rate, although the dividend allowance will reduce the amount of dividend subject to tax. The dividend of £12,000 will be reduced by the dividend allowance of £1,000 leaving taxable dividend income of £11,000. The dividend will be taxed at 33.75% so that the total tax payable on the dividends is £3,712.

How the shareholder pays the tax arising on the dividend income depends on the amount of dividend income and salary they receive in the tax year. If less than £1,000 they will not need to report anything or pay any tax. If between £1,000 and £10,000, the shareholder can pay what they owe by: contacting the HMRC helpline; asking HMRC to change their tax code – the tax will be taken from their wages or pension or through completion of the 'Dividends' section of their self-assessment tax return, where one is already being filed. If over £10,000 they will be required to file a self-assessment tax return and should complete the 'Dividends' section with details of the amounts received.

US federal income taxation

A US holder is subject to US federal income taxation on the gross amount of any dividend paid by the company (including dividends paid but reinvested under the Global Invest Direct (GID) Dividend Reinvestment Plan for ADS holders) out of its current or accumulated earnings and profits (as determined for US federal income tax purposes). Dividends paid to a non-corporate US holder that constitute qualified dividend income will be taxable to the holder at a preferential rate, provided that the holder has a holding period in the ordinary shares or ADSs of more than 60 days during the 121-day period beginning 60 days before the ex-dividend date and meets other holding period requirements. Dividends paid by the company with respect to the ordinary shares or ADSs will generally be qualified dividend income.

For US federal income tax purposes, a dividend must be included in income when the US holder, in the case of ordinary shares, or the Depositary, in the case of ADSs, actually or constructively receives the dividend and will not be eligible for the dividends-received deduction generally allowed to US corporations in respect of dividends received from other US corporations.

US ADS holders should consult their own tax advisor regarding the US tax treatment of the dividend fee in respect of dividends. Dividends will generally be income from sources outside the US and generally will be 'passive category income' for purposes of computing a US holder's foreign tax credit limitation.

As noted above in UK taxation, a US holder will not be subject to UK withholding tax. Accordingly, the receipt of a dividend will not entitle the US holder to a foreign tax credit.

The amount of the dividend distribution on the ordinary shares that is paid in pounds sterling will be the US dollar value of the pounds sterling payments made, determined at the spot pounds sterling/US dollar rate on the date the dividend is distributed, regardless of whether the payment is, in fact, converted into US dollars. Generally, any gain or loss resulting from currency exchange fluctuations during the period from the date the pounds sterling dividend payment is distributed to the date the payment is converted into US dollars will be treated as ordinary income or loss and will not be eligible for the preferential tax rate on qualified dividend income. The gain or loss generally will be income or loss from sources within the US for foreign tax credit limitation purposes.

Distributions in excess of the company's earnings and profits, as determined for US federal income tax purposes, will be treated as a return of capital to the extent of the US holder's basis in the ordinary shares or ADSs and thereafter as capital gain, subject to taxation as described in 'Taxation of capital gains – US federal income taxation' section below.

In addition, the taxation of dividends may be subject to the rules for passive foreign investment companies (PFIC), described below under 'Taxation of capital gains – US federal income taxation'. Distributions made by a PFIC do not constitute qualified dividend income and are not eligible for the preferential tax rate applicable to such income.

Taxation of capital gains

UK taxation

A US holder may be liable for both UK and US tax in respect of a gain on the disposal of ordinary shares or ADSs if the US holder is (1) resident for tax purposes in the UK at the date of disposal, (2) if he or she has left the UK for a period not exceeding five complete tax years between the year of departure from and the year of return to the UK and acquired the shares before leaving the UK and was resident in the UK in the previous four out of seven tax years before the year of departure, (3) a US domestic corporation resident in the UK by reason of its business being managed or controlled in the UK or (4) a citizen of the US that carries on a trade or profession or vocation in the UK through a branch or agency or a corporation that carries on a trade, profession or vocation in the UK, through a permanent establishment, and that has used, held, or acquired the ordinary shares or ADSs for the purposes of such trade, profession or vocation of such branch, agency or permanent establishment. However, such persons may be entitled to a tax credit against their US federal income tax liability for the amount of UK capital gains tax or UK corporation tax on chargeable gains (as the case may be) that is paid in respect of such gain.

Under the Treaty, capital gains on dispositions of ordinary shares or ADSs generally will be subject to tax only in the jurisdiction of residence of the relevant holder as determined under both the laws of the UK and the US and as required by the terms of the Treaty.

Under the Treaty, individuals who are residents of either the UK or the US and who have been residents of the other jurisdiction (the US or the UK, as the case may be) at any time during the six years immediately preceding the relevant disposal of ordinary shares or ADSs may be subject to tax with respect to capital gains arising from a disposition of ordinary shares or ADSs of the company not only in the jurisdiction of which the holder is resident at the time of the disposition but also in the other jurisdiction.

For gains on or after 23 June 2010, the UK Capital Gains Tax rate will be dependent on the level of an individual's taxable income. Where total taxable income and gains after all allowable deductions are less than the upper limit of the basic rate income tax band of £37,700 (for 2023/24), the rate of Capital Gains Tax will be 10%. For gains (and any parts of gains) above that limit the rate will be 20%.

From 6 April 2008, entitlement to the annual exemption is based on an individual's circumstances (taking into account domicile status, remittance basis of taxation and number of years in the UK). For individuals who are

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entitled to the exemption for 2023/24, this has been set at £6,000. Corporation tax on chargeable gains is levied at 25% for companies from 1 April 2023.

US federal income taxation

A US holder who sells or otherwise disposes of ordinary shares or ADSs will recognize a capital gain or loss for US federal income tax purposes equal to the difference between the US dollar value of the amount realized on the disposition and the US holder's tax basis, determined in US dollars, in the ordinary shares or ADSs. Any such capital gain or loss generally will be long-term gain or loss, subject to tax at a preferential rate for a non-corporate US holder, if the US holder's holding period for such ordinary shares or ADSs exceeds one year. The tax basis of shares acquired through reinvested dividends under the GID Dividend Reinvestment Plan for ADS holders is equal to the fair market value of the stock on the investment date. The holding period for shares acquired under the plan begins the day after the applicable investment date.

Gain or loss from the sale or other disposition of ordinary shares or ADSs will generally be income or loss from sources within the US for foreign tax credit limitation purposes. The deductibility of capital losses is subject to limitations.

We do not believe that ordinary shares or ADSs will be treated as stock of a passive foreign investment company (PFIC) for US federal income tax purposes, but this conclusion is a factual determination that is made annually and thus is subject to change. If we are treated as a PFIC, unless a US holder elects to be taxed annually on a mark-to-market basis with respect to ordinary shares or ADSs, any gain realized on the sale or other disposition of ordinary shares or ADSs would in general not be treated as capital gain. Instead, a US holder would be treated as if he or she had realized such gain rateably over the holding period for ordinary shares or ADSs and would be taxed at the highest tax rate in effect for each such year to which the gain was allocated, in addition to which an interest charge in respect of the tax attributable to each such year would apply. Certain 'excess distributions' would be similarly treated if we were treated as a PFIC.

Additional tax considerations

Scrip Programme

Until the publication of the 2019 third quarter results, the company had an optional Scrip Programme, wherein holders of bp ordinary shares or ADSs could elect to receive any dividends in the form of new fully paid ordinary shares or ADSs of the company instead of cash. Please consult your tax advisor for the consequences to you.

UK inheritance tax

The Estate Tax Convention applies to inheritance tax. ADSs held by an individual who is domiciled for the purposes of the Estate Tax Convention in the US and is not for the purposes of the Estate Tax Convention a national of the UK will not be subject to UK inheritance tax on the individual's death or on transfer during the individual's lifetime unless, among other things, the ADSs are part of the business property of a permanent establishment situated in the UK used for the performance of independent personal services. In the exceptional case where ADSs are subject to both inheritance tax and US federal gift or estate tax, the Estate Tax Convention generally provides for tax payable in the US to be credited against tax payable in the UK or for tax paid in the UK to be credited against tax payable in the US, based on priority rules set forth in the Estate Tax Convention.

UK stamp duty and stamp duty reserve tax

The statements below relate to what is understood to be the current practice of HM Revenue & Customs in the UK under existing law.

Provided that any instrument of transfer is not executed in the UK and remains at all times outside the UK and the transfer does not relate to any matter or thing done or to be done in the UK, no UK stamp duty is payable on the acquisition or transfer of ADSs. Neither will an agreement to transfer ADSs in the form of ADRs give rise to a liability to stamp duty reserve tax.

Purchases of ordinary shares, as opposed to ADSs, through the CREST system of paperless share transfers will be subject to stamp duty reserve tax at 0.5%. The charge will arise as soon as there is an agreement for the transfer of the shares (or, in the case of a conditional agreement, when the condition is fulfilled). The stamp duty reserve tax will apply to agreements to transfer ordinary shares even if the agreement is made outside the UK between two non-residents. Purchases of ordinary shares outside the CREST system are subject either to stamp duty at a rate of £5 per £1,000 (or part, unless the stamp duty is less than £5, when no stamp duty is charged), or stamp duty reserve tax at 0.5%. Stamp duty and stamp duty reserve tax are generally the liability of the purchaser.

A subsequent transfer of ordinary shares to the Depositary's nominee will give rise to further stamp duty at the rate of £1.50 per £100 (or part) or stamp duty reserve tax at the rate of 1.5% of the value of the ordinary shares at the time of the transfer. For ADR holders electing to receive ADSs instead of cash, after the 2012 first quarter dividend payment, HM Revenue & Customs no longer seeks to impose 1.5% stamp duty reserve tax on issues of UK shares and securities to non-EU clearance services and depositary receipt systems.

Major shareholders

The disclosure of certain major and significant shareholdings in the share capital of the company is governed by the Companies Act 2006, the UK Financial Conduct Authority's Disclosure Guidance and Transparency Rules (DTR) and the US Securities Exchange Act of 1934.

Register of members holding bp ordinary shares as at 31 December 2023

Range of holdings	Number of ordinary shareholders	Percentage of total ordinary shareholders	Percentage of total ordinary share capital excluding shares held in treasury
1-200	51,421	25.55	0.01
201-1,000	65,819	32.70	0.21
1,001-10,000	73,508	36.52	1.35
10,001-100,000	9,162	4.55	1.12
100,001-1,000,000	767	0.38	1.61
Over 1,000,000[a]	598	0.30	95.70
Totals	201,275	100.00	100.00

[a] Includes JPMorgan Chase Bank, N.A. holding 25.93% of the total ordinary issued share capital (excluding shares held in treasury) as the approved depositary for ADSs, a breakdown of which is shown in the table below.

Register of holders of American depositary shares (ADSs) as at 31 December 2023[a]

Range of holdings	Number of ADS holders	Percentage of total ADS holders	Percentage of total ADSs
1-200	38,097	59.62	0.27
201-1,000	16,827	26.34	1.07
1,001-10,000	8,640	13.52	2.95
10,001-100,000	324	0.51	0.71
100,001-1,000,000	5	0.01	0.11
Over 1,000,000[b]	2	0.00	94.88
Totals	63,895	100.00	100.00

[a] One ADS represents six 25 cent ordinary shares.
[b] One holder of ADSs represents 1,355,412 approx. underlying shareholders.

As at 31 December 2023 there were also 1,106 preference shareholders. Preference shareholders represented 0.49% and ordinary shareholders represented 99.51% of the total issued nominal share capital of the company (excluding shares held in treasury) as at that date.

As at 16 February 2024, the total preference shares in issue comprised only 0.50% of the company's total issued nominal share capital (excluding shares held in treasury), the rest being ordinary shares.

Substantial shareholders

The following table shows holdings of 3% or more voting rights in ordinary shares of 25 cents in BP p.l.c. as per the most recent notification of each respective holder to bp under DTR 5. The percentage of voting rights detailed below was calculated as at the date of the relevant disclosures.

	As at 31 December 2023		As at 16 February 2024	
	Number of voting rights	Percentage of capital	Number of voting rights	Percentage of capital
BlackRock, Inc.	1,504,412,502	7.37	1,504,412,502	7.37
Norges Bank	545,382,375	3.02	545,382,375	3.02

There are no current disclosable interests in holdings of 3% or more voting rights in 8% cumulative first preference shares of £1 each and 9% cumulative second preference shares of £1 each.

Largest registered shareholders

Under the US Securities Exchange Act of 1934 bp is aware of the following interests as at 16 February 2024.

Ordinary shares of $0.25 in BP p.l.c.:

Holder	Holding of ordinary shares	Percentage of ordinary share capital excluding shares held in treasury
JPMorgan Chase Bank N.A., depositary for ADSs, through its nominee Guaranty Nominees Limited	4,389,089,431	25.79
BlackRock, Inc.	1,584,721,078	9.31
The Vanguard Group, Inc	777,280,749	4.57
Norges Bank	584,175,750	3.43

8% cumulative first preference shares of £1 each in BP p.l.c.:

Holder	Holding of 8% cumulative first preference shares	Percentage of class
Hargreaves Lansdown Asset Management Limited	1,378,892	19.06
Interactive Investor Share Dealing Services	1,009,513	13.96
Barclays, Plc.	658,957	9.11
Halifax Share Dealing Services	547,821	7.57
Canaccord Genuity Group Inc.	544,494	7.53
AJ Bell Securities, Ltd.	492,668	6.81

9% cumulative second preference shares of £1 each in BP p.l.c.:

Holder	Holding of 9% cumulative second preference shares	Percentage of class
Hargreaves Lansdown Asset Management Limited	884,655	16.16
Redmayne-Bentley LLP	564,500	10.31
Interactive Investor Share Dealing Services	498,946	9.12
AJ Bell Securities, Ltd.	460,885	8.42
Canaccord Genuity Group Inc.	351,605	6.42
Safra Group	347,500	6.35
Halifax Share Dealing Services	292,161	5.34

The company's major shareholders' voting rights may differ to their total interest and can be found under the substantial shareholders heading above where voting rights are over 3%.

Annual general meeting (AGM)

The 2024 AGM is scheduled to be held on Thursday 25 April 2024 at 11:00am BST. A separate notice convening the meeting is distributed to shareholders, which includes an explanation of the items of business to be considered at the meeting.

All resolutions for which notice has been given will be decided on a poll. Deloitte LLP have expressed their willingness to continue in office as auditors and a resolution for their reappointment is included in the *Notice of bp Annual General Meeting 2024*.

Memorandum and Articles of Association

The following summarizes certain provisions of the company's Memorandum and Articles of Association and applicable English law. This summary is qualified in its entirety by reference to the UK Companies Act 2006 (the Act) and the company's Memorandum and Articles of Association. The Memorandum and Articles of Association are available online at bp.com/usefuldocs.

The company's Articles of Association may be amended by a special resolution at a general meeting of the shareholders. At the AGM held on 21 May 2018 shareholders voted to adopt new Articles of Association to reflect developments in market practice and to provide clarification and additional flexibility where necessary or appropriate.

Objects and purposes

BP p.l.c. is a public company limited by shares and registered in England and Wales with the registered number 102498. The provisions regulating the operations of the company, known as its 'objects', were historically stated in a company's memorandum. The Act abolished the need to have object provisions and so at the AGM held on 15 April 2010 shareholders approved the removal of its objects clause together with all other provisions of its Memorandum that, by virtue of the Act, are treated as forming part of the company's Articles of Association.

Directors and secretary

The business and affairs of the company shall be managed by the directors. The company's Articles of Association provide that any person may be appointed by the existing directors or by the shareholders in a general meeting either as a replacement for another director or as an additional director. Any person appointed by the directors will hold office only until the next general meeting, notice of which is first given after their appointment and will then be eligible for re-election by the shareholders. A director may be removed by the company as provided for by applicable law and shall vacate office in certain circumstances as set out in the Articles of Association. In addition, the company may, by special resolution, remove a director before the expiration of his/her period of office and, subject to the Articles of Association, may by ordinary resolution appoint another person to be a director instead. There is no requirement for a director to retire on reaching any age.

The Articles of Association place a general prohibition on a director voting in respect of any contract or arrangement in which the director has a material interest other than by virtue of such director's interest in shares in the company. However, in the absence of some other material interest not indicated below, a director is entitled to vote and to be counted in a quorum for the purpose of any vote relating to a resolution concerning the following matters:

- The giving of security or indemnity with respect to any money lent or obligation taken by the director at the request or benefit of the company or any of its subsidiary undertakings.
- The giving of security or indemnity to a third party with respect to any debt or obligation of the company or any of its subsidiary undertakings for which the director has assumed responsibility.
- Any proposal in which the director is interested, concerning the underwriting of company securities or debentures or the giving of any security to a third party for a debt or obligation of the company or any of its subsidiary undertakings.
- Any proposal concerning any other company in which the director is interested, directly or indirectly (whether as an officer or shareholder or otherwise) provided that the director and persons connected with such director are not the holder or holders of 1% or more of the voting interest in the shares of such company.
- Any proposal concerning the purchase or maintenance of any insurance policy under which the director may benefit.
- Any proposal concerning the giving to the director of any other indemnity which is on substantially the same terms as indemnities given or to be given to all of the other directors or to the funding by the company of his expenditure on defending proceedings or the doing by the company of anything to enable the director to avoid incurring such expenditure where all other directors have been given or are to be given substantially the same arrangements.
- Any proposal concerning an arrangement for the benefit of the employees and directors or former employees and former directors of

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the company or any of its subsidiary undertakings, including but without being limited to a retirement benefits scheme and an employees' share scheme, which does not accord to any director any privilege or advantage not generally accorded to the employees or former employees to whom the arrangement relates.

The Act requires a director of a company who is in any way interested in a contract or proposed contract with the company to declare the nature of the director's interest at a meeting of the directors of the company. The definition of 'interest' includes the interests of spouses, children, companies and trusts. The Act also requires that a director must avoid a situation where a director has, or could have, a direct or indirect interest that conflicts, or possibly may conflict, with the company's interests. The Act allows directors of public companies to authorize such conflicts where appropriate, if a company's Articles of Association so permit. The company's Articles of Association permit the authorization of such conflicts. The directors may exercise all the powers of the company to borrow money, except that the amount remaining undischarged of all moneys borrowed by the company shall not, without approval of the shareholders, exceed two times the amount paid up on the share capital plus the aggregate of the amount of the capital and revenue reserves of the company and its subsidiary undertakings incorporated in the UK. Variation of the borrowing power of the board may only be affected by amending the Articles of Association.

Remuneration of non-executive directors shall be determined in the aggregate by resolution of the shareholders. Remuneration of executive directors is determined by the remuneration committee. This committee is made up of non-executive directors only. There is no requirement of share ownership for a director's qualification.

The Articles of Association provide entitlement to the directors' pensions and death and disability benefits to the directors' relations and dependants respectively.

The circumstances in which a director's office will automatically terminate include, amongst others: when a director ceases to hold an executive office of the company and the directors resolve that they should cease to be a director; if a medical practitioner provides an opinion that a director has become incapable of acting as a director and may remain so incapable for more than a further three months and the directors resolve that they should cease to be a director; and if all of the other directors vote in favour of a resolution stating that the person should cease to be a director.

The company secretary has express powers to delegate any of the powers or discretions conferred on him or her.

Dividend rights; other rights to share in company profits; capital calls

Shareholders of the company may, by resolution, declare dividends but no such dividend may be declared in excess of the amount recommended by the directors. The directors may also pay interim dividends without obtaining shareholder approval. No dividend may be paid other than out of profits available for distribution, as determined under IFRS and the Act. Dividends on ordinary shares are payable only after payment of dividends on bp preference shares. Any dividend unclaimed after a period of 10 years from the date of declaration of such dividend shall be forfeited and reverts to bp. If the company exercises its right to forfeit shares and sells shares belonging to an untraced shareholder then any entitlement to claim dividends or other monies unclaimed in respect of those shares will be for a period of 12 months after the sale. The company may take such steps as the directors decide are appropriate in the circumstances to trace the member entitled and the sale may be made at such time and on such terms as the directors may decide.

The directors have the power to declare and pay dividends in any currency provided that a sterling equivalent is announced. It is not the company's intention to change its current policy of paying dividends in US dollars. At the company's AGM held on 15 April 2010, shareholders approved the introduction of a Scrip Dividend Programme (Scrip Programme) and to include provisions in the Articles of Association to enable the company to operate the Scrip Programme. The Scrip Programme was renewed at the company's AGM held on 12 May 2021 for a further three years. The Scrip Programme enables ordinary shareholders and bp ADS holders to elect to receive new fully paid ordinary shares (or bp ADSs in the case of bp ADS holders) instead of cash. The operation of the Scrip Programme is always subject to the directors' decision to make the scrip offer available in respect of any particular dividend. Should the directors decide not to offer the scrip in respect of any particular dividend, cash will automatically be paid instead. The directors may determine in relation to any scrip dividend plan or programme how the costs of the programme will be met, the minimum number of ordinary shares required in order to be able to participate in the programme and any arrangements to deal with legal and practical difficulties in any particular territory.

Apart from shareholders' rights to share in bp's profits by dividend (if any is declared or announced), the Articles of Association provide that the directors may set aside:

- A special reserve fund out of the balance of profits each year to make up any deficit of cumulative dividend on the bp preference shares.
- A general reserve out of the balance of profits each year, which shall be applicable for any purpose to which the profits of the company may properly be applied. This may include capitalization of such sum, pursuant to an ordinary shareholders' resolution, and distribution to shareholders as if it were distributed by way of a dividend on the ordinary shares or in paying up in full unissued ordinary shares for allotment and distribution as bonus shares.

Any such sums so deposited may be distributed in accordance with the manner of distribution of dividends as described above.

Holders of shares are not subject to calls on capital by the company, provided that the amounts required to be paid on issue have been paid off. All shares are fully paid.

Share transfers and share certificates

The directors may permit transfers to be effected other than by an instrument in writing. Share certificates will not be required to be issued by the company if they are not required by law.

The company may charge an administrative fee in the event that a shareholder wishes to replace two or more certificates representing shares with a single certificate or wishes to surrender a single certificate and replace it with two or more certificates. All certificates are sent at the member's risk.

Voting rights

The Articles of Association of the company provide that voting on resolutions at a shareholders' meeting will be decided on a poll other than resolutions of a procedural nature, which may be decided on a show of hands. If voting is on a poll, every shareholder who is present in person or by proxy has one vote for every ordinary share held and two votes for every £5 in nominal amount of bp preference shares held. If voting is on a show of hands, each shareholder who is present at the meeting in person or whose duly appointed proxy is present in person will have one vote, regardless of the number of shares held, unless a poll is requested.

Shareholders do not have cumulative voting rights.

For the purposes of determining which persons are entitled to attend or vote at a shareholders' meeting and how many votes such persons may cast, the company may specify in the notice of the meeting a time, not more than 48 hours before the time of the meeting, by which a person who holds shares in registered form must be entered on the company's register of members in order to have the right to attend or vote at the meeting or to appoint a proxy to do so.

Holders on record of ordinary shares may appoint a proxy, including a beneficial owner of those shares, to attend, speak and vote on their behalf at any shareholders' meeting, provided that a duly completed proxy form is received not less than 48 hours (or such shorter time as the directors may determine) before the time of the meeting or adjourned meeting or, where the poll is to be taken after the date of the meeting, not less than 24 hours (or such shorter time as the directors may determine) before the time of the poll.

Record holders of bp ADSs are also entitled to attend, speak and vote at any shareholders' meeting of the company by the appointment by the approved depositary, JPMorgan Chase Bank N.A., of them as proxies in respect of the ordinary shares represented by their ADSs. Each such proxy may also appoint a proxy. Alternatively, holders of bp ADSs are entitled to vote by supplying their voting instructions to the Depositary, who will vote the ordinary shares represented by their ADSs in accordance with their instructions.

Proxies may be delivered electronically.

Corporations who are members of the company may appoint one or more persons to act as their representative or representatives at any shareholders' meeting provided that the company may require a corporate representative to produce a certified copy of the resolution appointing them before they are permitted to exercise their powers.

Matters are transacted at shareholders' meetings by the proposing and passing of resolutions, of which there are two types: ordinary or special.

An ordinary resolution requires the affirmative vote of a majority of the votes cast at a meeting at which there is a quorum. A special resolution requires the affirmative vote of not less than three quarters of the votes cast at a meeting at which there is a quorum. Any AGM requires 21 clear days' notice. The notice period for any other general meeting is 14 clear days subject to the company obtaining annual shareholder approval, failing which, a 21 clear day notice period will apply.

Liquidation rights; redemption provisions

In the event of a liquidation of bp, after payment of all liabilities and applicable deductions under UK laws and subject to the payment of secured creditors, the holders of bp preference shares would be entitled to the sum of (1) the capital paid up on such shares plus, (2) accrued and unpaid dividends and (3) a premium equal to the higher of (a) 10% of the capital paid up on the bp preference shares and (b) the excess of the average market price over par value of such shares on the LSE during the previous six months. The remaining assets (if any) would be divided pro rata among the holders of ordinary shares.

Without prejudice to any special rights previously conferred on the holders of any class of shares, bp may issue any share with such preferred, deferred or other special rights, or subject to such restrictions as the shareholders by resolution determine (or, in the absence of any such resolutions, by determination of the directors), and may issue shares that are to be or may be redeemed.

Variation of rights

The rights attached to any class of shares may be varied with the consent in writing of holders of 75% of the shares of that class or on the adoption of a special resolution passed at a separate meeting of the holders of the shares of that class. At every such separate meeting, all of the provisions of the Articles of Association relating to proceedings at a general meeting apply, except that the quorum with respect to a meeting to change the rights attached to the preference shares is 10% or more of the shares of that class, and the quorum to change the rights attached to the ordinary shares is one third or more of the shares of that class.

Shareholders' meetings and notices

Shareholders must provide bp with a postal or electronic address in the UK to be entitled to receive notice of shareholders' meetings. Holders of bp ADSs are entitled to receive notices under the terms of the deposit agreement relating to bp ADSs. The substance and timing of notices are described above under the heading Voting rights.

Under the Act, the AGM of shareholders must be held once every year, within each six-month period beginning with the day following the company's accounting reference date. All general meetings shall be held at a time and place determined by the directors. If any shareholders' meeting is adjourned for lack of quorum, notice of the time and place of the adjourned meeting may be given in any lawful manner, including electronically. Powers exist for action to be taken either before or at the meeting by authorized officers to ensure its orderly conduct and safety of those attending.

The directors have power to convene a general meeting which is a hybrid meeting, that is to provide facilities for shareholders to attend a meeting which is being held at a physical place by electronic means as well (but not to convene a purely electronic meeting).

The provisions of the Articles of Association in relation to satellite meetings permit facilities being provided by electronic means to allow those persons at each place to participate in the meeting.

Limitations on voting and shareholding

There are no limitations, either under the laws of the UK or under the company's Articles of Association, restricting the right of non-resident or foreign owners to hold or vote bp ordinary or preference shares in the company other than limitations that would generally apply to all of the shareholders and limitations applicable to certain countries and persons subject to EU economic sanctions or those sanctions adopted by the UK government which implement resolutions of the Security Council of the United Nations.

Disclosure of interests in shares

The Act permits a public company to give notice to any person whom the company believes to be or, at any time during the three years prior to the issue of the notice, to have been interested in its voting shares requiring them to disclose certain information with respect to those interests. Failure to supply the information required may lead to disenfranchisement of the relevant shares and a prohibition on their transfer and receipt of dividends and other payments in respect of those shares and any new shares in the company issued in respect of those shares. In this context the term 'interest' is widely defined and will generally include an interest of any kind whatsoever in voting shares, including any interest of a holder of bp ADSs.

Called-up share capital

Details of the allotted, called-up and fully-paid share capital at 31 December 2023 are set out in Financial statements – Note 31. In accordance with institutional investor guidelines, the company deems it appropriate to grant authority to the directors to allot shares and other securities and to disapply pre-emption rights by way of shareholders' resolutions at each AGM in place of authority granted by virtue of the company's Articles of Association. At the AGM on 27 April 2023, authorization was given to the directors to allot shares in the company and to grant rights to subscribe for, or to convert any security into, shares in the company up to an aggregate nominal amount as set out in the *Notice of Annual General Meeting 2023*. These authorities were given for the period until the next AGM in 2024 or 27 July 2024, whichever is the earlier. These authorities are renewed annually at the AGM.

Company records and service of notice

In relation to notices not covered by the Act, the reference to notice by advertisement in a national newspaper also includes advertisements via other means such as a public announcement.

Purchases of equity securities by the issuer and affiliated purchasers

During the 2023 financial year the company repurchased 1,262,982,632 ordinary shares with a nominal value of $0.25 each for a total consideration of $7,917,779,459 (including transaction costs), for the purpose of reducing the issued share capital of the company in order to return capital to shareholders and to offset the expected dilution from the vesting of awards under employee share schemes. The shares repurchased in 2023 represented 7.35% of the company's issued share capital, excluding shares held in treasury, on 31 December 2023. Of the shares repurchased in 2023, shares purchased under the 2022 AGM authority represented 3.57%, and shares purchased under the 2023 AGM authority represented 3.78%, of bp's issued share capital, excluding shares held in treasury, on 31 December 2023. A further 155,997,926 ordinary shares were repurchased between the end of the financial year and 16 February 2024 at a cost of $921,854,905 (including transaction costs) representing 0.91% of the company's issued share capital, excluding shares held in treasury, on 31 December 2023. All ordinary shares repurchased in 2023 and in 2024 up to 16 February under the share buyback programmes were cancelled.

Authorization for the company to make market purchases (as defined in section 693(4) of the Companies Act 2006) of ordinary shares with a nominal value of $0.25 each in the company was renewed at the company's 2023 AGM covering the period until the date of the company's 2024 AGM or 27 July 2024, whichever is earlier. The maximum number of ordinary shares to be purchased under this authority will not exceed 1,805,104,334 ordinary shares. The shares purchased will be cancelled.

The following table provides details of ordinary share purchases made (1) under the share buyback programmes and (2) by the Employee Share Ownership Plans (ESOPs) and other purchases of ordinary shares and ADSs made to satisfy the requirements of certain employee share-based payment plans.

	Total number of shares purchased[a]	Average price paid per share $	Number of shares purchased by ESOPs or for certain employee share-based plans[b]	Number of shares purchased under buyback programmes[c]	Maximum approximate dollar value of shares yet to be purchased under the programmes $ million
2023					
January 05 - January 31	**68,903,875**	**5.90**		68,903,875	N/A
February 01 - February 28	**102,718,280**	**6.59**		102,718,280	N/A
March 01 - March 31	**213,867,501**	**6.38**		213,867,501	N/A
April 03 - April 28	**141,850,648**	**6.66**		141,850,648	N/A
May 02 - May 31	**87,193,292**	**6.16**		87,193,292	N/A
June 01 - June 30	**100,436,661**	**5.88**		100,436,661	N/A
July 03 - July 31	**145,630,746**	**6.04**		145,630,746	N/A
August 01 - August 31	**83,873,967**	**6.13**		83,873,967	N/A
September 01 - September 29	**101,341,955**	**6.45**		101,341,955	N/A
October 02 - October 31	**91,937,237**	**6.51**		91,937,237	N/A
November 02 - November 30	**90,722,912**	**6.00**		90,722,912	N/A
December 01 - December 29	**59,193,301**	**5.97**	24,687,743	34,505,558	N/A
2024					
January 02 - January 31	**113,923,673**	**5.87**	7,312,257	106,611,416	N/A
February 02 - February 16	**49,386,510**	**6.02**		49,386,510	N/A

[a] All share purchases were of ordinary shares of $0.25 each and/or ADSs (each representing six ordinary shares) and were on/open market transactions.

[b] Transactions represent the purchases of ordinary shares and ADSs made to satisfy requirements of certain employee share-based payment plans.

[c] Share repurchases from 1 January to 3 February 2023 were made under a share buyback programme announced on 1 November 2022 for a period up to and including 3 February 2023. The company announced two programmes in one announcement on 7 February 2023. One covered a period up to and including 28 April 2023 and the other, relating to employee share schemes, was for a period up to and including 30 September 2023. On 2 May 2023 the company announced a programme covering a period up to and including 28 July 2023. On 1 August 2023 the company announced a programme covering a period up to and including 27 October 2023. On 31 October 2023 the company announced a programme covering a period up to and including 2 February 2024. On 6 February 2024 the company announced a programme covering a period up to and including 3 May 2024.

Fees and charges payable by ADS holders

The Depositary collects fees for delivery and surrender of ADSs directly from investors depositing shares or surrendering ADSs for the purpose of withdrawal or from intermediaries acting for them. The Depositary collects fees for making distributions to investors by deducting those fees from the amounts distributed or by selling a portion of the distributable property to pay the fees.

The charges of the Depositary payable by investors are as follows:

Type of service	Depositary actions	Fee
Depositing or substituting the underlying shares	Issuance of ADSs against the deposit of shares, including deposits and issuances in respect of: • Share distributions, stock splits, rights, merger. • Exchange of securities or other transactions or event or other distribution affecting the ADSs or deposited securities.	$5.00 per 100 ADSs (or portion thereof) evidenced by the new ADSs delivered.
Selling or exercising rights	Distribution or sale of securities, the fee being an amount equal to the fee for the execution and delivery of ADSs that would have been charged as a result of the deposit of such securities.	$5.00 per 100 ADSs (or portion thereof).
Withdrawing an underlying share	Acceptance of ADSs surrendered for withdrawal of deposited securities.	$5.00 for each 100 ADSs (or portion thereof) evidenced by the ADSs surrendered.
Expenses of the Depositary	Expenses incurred on behalf of holders in connection with: • Stock transfer or other taxes and governmental charges. • Delivery by cable, telex, electronic and facsimile transmission. • Transfer or registration fees, if applicable, for the registration of transfers of underlying shares. • Expenses of the Depositary in connection with the conversion of foreign currency into US dollars (which are paid out of such foreign currency).	Expenses payable are subject to agreement between the company and the Depositary by billing holders or by deducting charges from one or more cash dividends or other cash distributions.
Dividend fees	ADS holders who receive a cash dividend are charged a fee which bp uses to offset the costs associated with administering the ADS programme.	The Deposit Agreement provides that a fee of $0.05 or less per ADS can be charged. The current fee is $0.02 per bp ADS per calendar year (equivalent to $0.005 per bp ADS per quarter per cash distribution).
Global Invest Direct (GID) Plan	New investors and existing ADS holders can buy, sell or reinvest dividends into further bp ADSs by enrolling in bp's GID Plan, sponsored and administered by the Depositary.	Cost per transaction is $2.00 for recurring, $2.00 for one-time automatic investments, and $5.00 for investment made by check. Dividend reinvestment is 5% of the dividend amount up to a maximum of $5.00. Purchase trading commission is $0.12 per share.

Fees and payments made by the Depositary to the issuer

The Depositary has agreed to reimburse certain company expenses related to the company's ADS programme and incurred by the company in connection with the ADS programme arising during the year ended 31 December 2023. The Depositary reimbursed to the company, or paid amounts on the company's behalf to third parties, or waived its fees and expenses, of $16,165,200.95 for the year ended 31 December 2023.

The table below sets out the types of expenses that the Depositary has agreed to reimburse and the fees it has agreed to waive for standard costs associated with the administration of the ADS programme relating to the year ended 31 December 2023.

Category of expense reimbursed, waived or paid directly to third parties	Amount reimbursed, waived or paid directly to third parties for the year ended 31 December 2023
Fees for delivery and surrender of bp ADSs	1,763,093.64
Dividend fees[a]	14,400,550.21
Waived fees	1,557.10
Total	16,165,200.95

[a] Dividend fees are charged to ADS holders who receive a cash distribution, which bp uses to offset the costs associated with administering the ADS programme.

Under certain circumstances, including removal of the Depositary or termination of the ADS programme by the company, the company is required to repay the Depositary certain amounts reimbursed and/or expenses paid to or on behalf of the company during the 12-month period prior to notice of removal or termination.

Documents on display

The *bp Annual Report and Form 20-F 2023* is available online at bp.com/annualreport. To obtain a hard copy of bp's complete audited financial statements, free of charge, UK based shareholders should contact bp Distribution Services by calling +44 (0) 800 037 2172 or by emailing bpdistributionservices@bp.com. If based in the US or Canada shareholders should contact Issuer Direct by calling +1 888 301 2505 or by emailing bpreports@issuerdirect.com.

The company is subject to the information requirements of the US Securities Exchange Act of 1934 applicable to foreign private issuers. In accordance with these requirements, the company files its *Annual Report and Form 20-F* and other related documents with the SEC. The SEC maintains an internet site at sec.gov that contains reports and other information regarding issuers, including bp, that file electronically with the SEC. bp's SEC filings are also available at bp.com/sec. bp discloses in this report (see Corporate governance practices (Form 20-F Item 16G) on page 358) significant ways (if any) in which its corporate governance practices differ from those mandated for US companies under NYSE listing standards.

★ See glossary on **page 373**

Shareholding administration

If you have any queries about the administration of shareholdings, such as change of address, change of ownership, dividend payment options or to change the way you receive your company documents (such as the *bp Annual Report and Form 20-F* and *Notice of bp Annual General Meeting*) please contact the bp Registrar or the bp ADS Depositary.

Holders of American Depositary Receipts may request to inspect the books of the Depositary and the listing of receipt holders by contacting the bp ADS Depositary.

Ordinary and preference shareholders

The bp Registrar, Link Group, Central Square,
29 Wellington Street,
Leeds, LS1 4DL
Freephone in the UK 0800 701107
From outside the UK +44 (0)371 277 1014
bp share centre mybpshares.com

ADS holders

bp Shareowner Services
PO Box 64504, St Paul, MN 55164-0504, US
Toll-free in the US +1 877 638 5672
From outside the US +1 651 306 4383

2024 shareholder calendar[a]

28 Mar 2024	Fourth quarter interim dividend payment for 2023
25 Apr 2024	Annual general meeting
07 May 2024	First quarter results announced
17 May 2024	Record date (to be eligible for the first quarter interim dividend)
28 Jun 2024	First quarter interim dividend payment for 2024
28 Jun 2024	8% and 9% preference shares record date
30 Jul 2024	Second quarter results announced
31 Jul 2024	8% and 9% preference shares dividend payment
09 Aug 2024	Record date (to be eligible for the second quarter interim dividend)
20 Sep 2024	Second quarter interim dividend payment for 2024
29 Oct 2024	Third quarter results announced
08 Nov 2024	Record date (to be eligible for the third quarter interim dividend)
20 Dec 2024	Third quarter interim dividend payment for 2024

a All future dates are provisional and may be subject to change. For the full calendar see bp.com/financialcalendar.

Glossary

Abbreviations

ADR
American depositary receipt.

ADS
American depositary share. 1 ADS = 6 ordinary shares.

Barrel (bbl)
159 litres, 42 US gallons.

bcf
Billion cubic feet.

bcfe
Billion cubic feet equivalent.

boe
Barrels of oil equivalent.

EJ/yr
Exajoules per year.

EVP
Executive vice president.

FPSO
Floating production, storage and offloading.

GAAP
Generally accepted accounting practice.

Gas
Natural gas.

gCO_2e/MJ
Grams of carbon dioxide equivalent per megajoule of energy.

GHG
Greenhouse gas.

GRI
Global Reporting Initiative.

$GtCO_2$
Gigatonnes of carbon dioxide.

GW
Gigawatt.

GWh
Gigawatt hour.

HSSE
Health, safety, security and environment.

IFRS
International Financial Reporting Standards.

kb/d
Thousand barrels per day.

KPIs
Key performance indicators.

kt
Thousand tonnes.

LNG
Liquefied natural gas.

LPG
Liquefied petroleum gas.

mb/d
Thousand barrels per day

Mbbl
Million barrels.

mboe/d
Thousand barrels of oil equivalent per day.

mmb/d
Million barrels per day.

mmboe/d
Million barrels of oil equivalent per day.

mmBtu
Million British thermal units.

mmcf/d
Million cubic feet per day.

Mt
Million tonnes.

$MtCO_2e$
Million tonnes of CO_2 equivalent.

Mtpa
Million tonnes per annum.

MW
Megawatt.

MWe
Megawatt electrical.

MWp
Megawatt peak.

NGLs
Natural gas liquids.

PSA
Production-sharing agreement.

PTA
Purified terephthalic acid.

RC
Replacement cost.

SEC
The United States Securities and Exchange Commission.

TWh
Terawatt hour.

SVP
Senior vice president.

scfm
Standard cubit feet per minute

Definitions

Unless the context indicates otherwise, the definitions for the following glossary terms are given below.

Non-IFRS measures are sometimes referred to as alternative performance measures.

CA100+ resolution glossary

CA100+ resolution
The CA100+ resolution means the special resolution requisitioned by Climate Action 100+ and passed at bp's 2019 Annual General Meeting, the text of which is set out below.

★ See glossary on **page 373**

Special resolution: Climate Action 100+ shareholder resolution on climate change disclosures

That in order to promote the long-term success of the company, given the recognized risks and opportunities associated with climate change, we as shareholders direct the company to include in its strategic report and/or other corporate reports, as appropriate, for the year ending 2019 onwards, a description of its strategy which the board considers, in good faith, to be consistent with the goals of Articles 2.1(a)(1) and 4.1(2) of the Paris Agreement (3) (the Paris goals), as well as:

(1) Capital expenditure: how the company evaluates the consistency of each new material capex investment, including in the exploration, acquisition or development of oil and gas resources and reserves and other energy sources and technologies, with (a) the Paris goals and separately (b) a range of other outcomes relevant to its strategy.

(2) Metrics and targets: the company's principal metrics and relevant targets or goals over the short, medium and/or long term, consistent with the Paris goals, together with disclosure of:

a. The anticipated levels of investment in (i) oil and gas resources and reserves; and (ii) other energy sources and technologies.

b. The company's targets to promote reductions in its operational greenhouse gas emissions, to be reviewed in line with changing protocols and other relevant factors.

c. The estimated carbon intensity of the company's energy products and progress on carbon intensity over time.

d. Any linkage between the above targets and executive remuneration.

(3) Progress reporting: an annual review of progress against (1) and (2) above.

Such disclosure and reporting to include the criteria and summaries of the methodology and core assumptions used, and to omit commercially confidential or competitively sensitive information and be prepared at reasonable cost; and provided that nothing in this resolution shall limit the company's powers to set and vary its strategy, or associated targets or metrics, or to take any action which it believes in good faith, would best promote the long-term success of the company.

The Paris goals

(1) Article 2.1(a) of the Paris Agreement states the goal of 'Holding the increase in the global average temperature to well-below-2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change'.

(2) Article 4.1 of the Paris Agreement: In order to achieve the long-term temperature goal set out in Article 2, parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.

(3) U.N. Framework Convention on Climate Change Conference of Parties, Twenty-First Session, Adoption of the Paris Agreement, U.N. Doc. FCCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015).

New material capex investment

For the purposes of the 2023 evaluation discussed on pages 30-34, 'new material capex investment' means a decision taken by the resource commitment meeting (RCM) in 2023 to incur inorganic or organic investments greater than $250 million that relate to a new project or asset, extending an existing project or asset, or acquiring or increasing a share in a project, asset or entity.

There were nine investments that met the above criteria in 2023.

Material capex evaluation: Paris-consistency quantitative tests.

For the purposes of evaluating material capex investments for consistency with the Paris goals, two quantitative tests were applied, see page 33.

Operational carbon intensity (CI)

The annual average operational GHG emissions ($TeCO_2e$/unit), divided by the relevant unit of output:

- Per thousand barrels of oil equivalent in upstream.
- Per utilized equivalent distillation capacity in refining.
- per thousand tonnes of petrochemicals production.

Net zero aims and ambition glossary

Average carbon intensity of sold energy products

The rate of GHG emissions per unit of energy delivered (in grams CO_2e/MJ) estimated in respect of sold energy products★. GHG emissions are estimated on a lifecycle basis covering use, production, and distribution of sold energy products.

Emissions from the carbon in our upstream oil and gas production

Estimated CO_2 emissions from the combustion of upstream production of crude oil, natural gas and natural gas liquids (NGLs) based on bp's net share of production, excluding bp's share of Rosneft production and assuming that all produced volumes undergo full stoichiometric combustion to CO_2.

Energy product

For the purposes of our 2023 disclosures relating to our aim 3, we consider an energy product to be one that is generally used to satisfy an energy demand. In the case of fuels, to burn them to release their calorific content, and in the case of electricity to provide work or heat. For further information on products included in bp's 2023 aim 3 reporting see the basis of reporting *bp.com/basisofreporting*.

Methane intensity

Methane intensity refers to the amount of methane emissions from bp's operated upstream oil and gas assets as a percentage of the total gas that goes to market from those operations. Our methodology is aligned with the Oil and Gas Climate Initiative's (OGCI).

Net zero

References to global net zero in the phrase, 'to help the world get to net zero', means achieving '...a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases...on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty', as set out in Article 4(1) of the Paris Agreement.

References to net zero for bp in the context of our ambition and aims 1, 2 and 3 mean achieving a balance between (a) the relevant Scope 1 and 2 emissions (for aim 1), Scope 3 emissions (for aim 2) or product lifecycle emissions (for aim 3) and (b) the aggregate of applicable deductions from qualifying activities such as sinks under our methodology at the applicable time.

Net zero★ operations

bp's aim to reach net zero operational greenhouse gas (CO2 and methane) emissions by 2050 or sooner, on a gross operational control basis, in accordance with bp's aim 1 which relates to our reported Scope 1 and 2 emissions. Any interim target or aim in respect of bp's aim 1 is defined in terms of absolute reductions relative to the baseline year of 2019.

Net zero★ production

bp's aim to reach net zero CO_2 emissions, in accordance with bp's aim 2, from the carbon in our upstream oil and gas production, in respect of the estimated CO_2 emissions from the combustion of upstream production of crude oil, natural gas and natural gas liquids (based on bp's net share of production, excluding bp's share of Rosneft production and assuming that all produced volumes undergo full stoichiometric combustion to CO_2). Aim 2 is bp's Scope 3 aim and relates to Scope 3 category 11 emissions within the selected boundary of bp's net share of upstream production of oil and gas. Any interim target or aim in respect of bp's aim 2 is defined in terms of absolute reductions relative to the baseline year of 2019.

Net zero★ sales

bp's aim to reach net zero for the carbon intensity of sold energy products★, in accordance with bp's aim 3. Any interim target or aim in respect of bp's aim 3 is defined in terms of reductions in the carbon intensity of the energy products we sell (in grams CO_2e/MJ) relative to the baseline year of 2019.

Physically traded energy products

For the purposes of aim 3, this includes trades in energy products★ which are physically settled, with the exception of, for example, financial trades and certain other transactions where the purpose or effect is that the volumes traded or supplied net off against each other.

Sold energy products

For the purposes of aim 3, these represent the energy products★ we sell to third parties including both marketed sales and physically traded energy products★. For these purposes, intercompany sales (sales between two group subsidiaries) are not included and equity-accounted entities are treated as third parties.

Sustainable emissions reductions (SER)

SERs result from actions or interventions that have led to ongoing reductions in Scope 1 (direct) and/or Scope 2 (indirect) greenhouse gas (GHG) emissions (carbon dioxide and methane) such that GHG emissions would have been higher in the reporting year if the intervention had not taken place. SERs must meet three criteria: a specific intervention that has reduced GHG emissions, the reduction must be quantifiable and the reduction is expected to be ongoing. Reductions are reportable for a 12-month period from the start of the intervention/action.

Adjusted EBIDA

Adjusted EBIDA is a non-IFRS measure and is defined as profit or loss for the period, adjusting for finance costs and net finance (income) or expense relating to pensions and other post-retirement benefits and taxation, inventory holding gains or losses before tax, net adjusting items★ before interest and tax, and taxation on an underlying RC basis, and adding back depreciation, depletion and amortization (pre-tax) and exploration expenditure written-off (net of adjusting items, pre-tax). bp believes that adjusted EBIDA is a useful measure for investors because it is a measure closely tracked by management to evaluate bp's operating performance and to make financial, strategic and operating decisions and because it may help investors to understand and evaluate, in the same manner as management, the underlying trends in bp's operational performance on a comparable basis, period on period. The nearest equivalent measure on an IFRS basis is profit or loss for the period. A reconciliation of profit or loss for the period to adjusted EBIDA is provided on page 383.

Adjusted EBIDA per share compound annual growth rate (CAGR)

Non-IFRS measure. Adjusted EBIDA per share is calculated based on the shares in issue at period end.

Adjusted EBITDA

Adjusted EBITDA is a non-IFRS measure presented for bp's operating segments and the group. Adjusted EBITDA for bp's operating segments is defined as replacement cost (RC) profit before interest and tax, excluding net adjusting items* before interest and tax, and adding back depreciation, depletion and amortization and exploration write-offs (net of adjusting items). Adjusted EBITDA by business is a further analysis of adjusted EBITDA for the customers & products businesses. bp believes it is helpful to disclose adjusted EBITDA by operating segment and by business because it reflects how the segments measure underlying business delivery. The nearest equivalent measure on an IFRS basis for the segment is RC profit or loss before interest and tax, which is bp's measure of profit or loss that is required to be disclosed for each operating segment under IFRS. A reconciliation to IFRS information is provided on pages 351 and 384.

Adjusted EBITDA for the group is defined as profit or loss for the period, adjusting for finance costs and net finance (income) or expense relating to pensions and other post-retirement benefits and taxation, inventory holding gains or losses before tax, net adjusting items before interest and tax, and adding back depreciation, depletion and amortization (pre-tax) and exploration expenditure written-off (net of adjusting items, pre-tax). The nearest equivalent measure on an IFRS basis for the group is profit or loss for the period. A reconciliation to IFRS information is provided on page 384.

We are unable to present reconciliations of forward-looking information for adjusted EBITDA for the group, strategic themes or transition growth engine, because without unreasonable efforts, we are unable to forecast accurately certain adjusting items required to calculate a meaningful comparable IFRS forward-looking financial measure. These items include inventory holding gains or losses, adjusting items and exploration expenditure written off that are difficult to predict in advance in order to include in an IFRS estimate.

Adjusted free cash flow

Adjusted free cash flow, as applicable to the directors' remuneration performance measure, is a non-IFRS measure and is defined as Operating cash flow less: (1) net cash used in investing activities as presented in the group cash flow statement; and (2) lease liability payments included in financing activities and adjusting for other proceeds reported within financing activities in the group cash flow statement and movements in lease creditor.

Adjusting items

Adjusting items are items that bp discloses separately because it considers such disclosures to be meaningful and relevant to investors. They are items that management considers to be important to period-on-period analysis of the group's results and are disclosed in order to enable investors to better understand and evaluate the group's reported financial performance. Adjusting items include gains and losses on the sale of businesses and fixed assets, impairments, environmental and other provisions and charges, restructuring, integration and rationalization costs, fair value accounting effects, costs relating to the Gulf of Mexico oil spill and other items. Adjusting items within equity-accounted earnings are reported net of incremental income tax reported by the equity-accounted entity. Adjusting items are used as a reconciling adjustment to derive underlying RC profit or loss and related underlying measures which are non-IFRS measures. An analysis of adjusting items by segment and type is shown on page 337.

Associate

An entity over which the group has significant influence and that is neither a subsidiary nor a joint arrangement of the group. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies.

Biofuels production

Biofuels production is average thousands of barrels of biofuel production per day during the period covered net to bp. This includes equivalent ethanol production, bp Bunge biopower for grid export, refining co-processing and standalone hydrogenated vegetable oil (HVO).

Biogas supply volumes

Biogas supply volumes is the average thousands of barrels of oil equivalent per day of production and offtakes during the period covered net to bp.

Bio-refinery

A facility that is dedicated to processing biological materials (including waste oil and crop waste) to produce biofuels such as biodiesel and sustainable aviation fuel, which may be blended to customer specifications with other components such as hydrocarbons at co-located or adjacent terminals and tanks.

Blue hydrogen

Hydrogen made from natural gas in combination with carbon captured and stored (CCS).

Capital employed

Non-IFRS measure. It is defined as total equity plus finance debt.

Capital expenditure

Total cash capital expenditure as stated in the group cash flow statement. Capital expenditure for the operating segments, gas & low carbon energy businesses and customers & products businesses is presented on the same basis.

Cash balance point

Cash balance point is defined as the implied Brent oil price 2021 real to balance bp's sources and uses of cash assuming an average bp refining marker margin around \$11/bbl and Henry Hub at \$3/mmBtu in 2021 real terms.

Commodity trading contracts

bp participates in regional and global commodity trading markets in order to manage, transact and hedge the crude oil, refined products and natural

★ See glossary on **page 373**

gas that the group either produces or consumes in its manufacturing operations. The range of contracts the group enters into in its commodity trading operations is described below. Using these contracts, in combination with rights to access storage and transportation capacity, allows the group to access advantageous pricing differences between locations, time periods and grades.

Exchange-traded commodity derivatives

Contracts that are typically in the form of futures and options traded on a recognized exchange, such as Nymex and ICE. Such contracts are traded in standard specifications for the main marker crude oils, such as Brent and West Texas Intermediate; the main product grades, such as gasoline and gasoil; and for natural gas and power. Gains and losses, otherwise referred to as variation margin, are generally settled on a daily basis with the relevant exchange. These contracts are used for the trading and risk management of crude oil, refined products, and natural gas and power. Realized and unrealized gains and losses on exchange-traded commodity derivatives are included in sales and other operating revenues for accounting purposes.

Over-the-counter (OTC) contracts

Contracts that are typically in the form of forwards, swaps and options. Some of these contracts are traded bilaterally between counterparties or through brokers, others may be cleared by a central clearing counterparty. These contracts can be used both for trading and risk management activities. Realized and unrealized gains and losses on OTC contracts are included in sales and other operating revenues for accounting purposes. Many grades of crude oil bought and sold use standard contracts including US domestic light sweet crude oil, commonly referred to as West Texas Intermediate, and a standard North Sea crude blend – Brent, Forties, Oseberg and Ekofisk (BFOE). Forward contracts are used in connection with the purchase of crude oil supplies for refineries and for marketing and sales of the group's oil production and refined products. The contracts typically contain standard delivery and settlement terms. These transactions call for physical delivery of oil with consequent operational and price risk. However, various means exist and are used from time to time, to settle obligations under the contracts in cash rather than through physical delivery. Physically settled BFOE contracts delivered by cargo additionally specify a standard volume and tolerance.

Gas and power OTC markets are highly developed in North America and the UK, where commodities can be bought and sold for delivery in future periods. These contracts are negotiated between two parties to purchase and sell gas and power at a specified price, with delivery and settlement at a future date. Typically, the contracts specify delivery terms for the underlying commodity. Some of these transactions are not settled physically as they can be net settled by transacting offsetting sale or purchase contracts for the same location and delivery period. The contracts contain standard terms such as delivery point, pricing mechanism, settlement terms and specification of the commodity. Typically, volume, price and term (e.g. daily, monthly and balance of month) are the main variable contract terms.

Swaps are typically contractual obligations to exchange cash flows between two parties. A typical swap transaction usually references a floating price and a fixed price with the net difference of the cash flows being settled. Options give the holder the right, but not the obligation, to buy or sell crude, oil products, natural gas or power at a specified price on or before a specific future date. Amounts under these derivative financial instruments are settled at expiry. Typically, netting agreements are used to limit credit exposure and support liquidity.

Spot and term contracts

Spot contracts are contracts to purchase or sell a commodity at the market price prevailing on or around the delivery date when title to the inventory is taken. Term contracts are contracts to purchase or sell a commodity at regular intervals over an agreed term. Though spot and term contracts may have a standard form, there is no offsetting mechanism in place. As such, these transactions result in physical delivery with operational and price risk. Spot and term contracts typically relate to purchases of crude for a refinery, products for marketing, or third-party natural gas, or sales of the group's oil production, oil products or gas production to third parties. For accounting purposes, spot and term sales are included in sales and other operating revenues when title passes. Similarly, spot and term purchases are included in purchases for accounting purposes.

Consolidation adjustment – UPII

Unrealized profit in inventory arising on inter-segment transactions.

Convenience gross margin

Non-IFRS measure. Convenience gross margin is calculated as RC profit before interest and tax for the customers & products segment, excluding RC profit before interest and tax for the refining & trading business (a non-IFRS measure), and adjusting items★ (as defined above) for the convenience & mobility business to derive underlying RC profit before interest and tax for the convenience & mobility business; subtracting underlying RC profit before interest and tax for the Castrol business; adding back depreciation, depletion and amortization, production and manufacturing, distribution and administration expenses for convenience & mobility (excluding *Castrol*); subtracting earnings from equity-accounted entities in the convenience & mobility business (excluding *Castrol*) and gross margin for the retail fuels, EV charging, aviation, B2B and midstream businesses. bp believes it is helpful because this measure may help investors to understand and evaluate, in the same way as management, our progress against our strategic objectives of convenience growth. The nearest IFRS measure is RC profit before interest and tax for the customers & products segment. A reconciliation of RC profit before interest and tax for the customers & products segment to convenience gross margin is provided on page 351.

Convenience gross margin growth

Non-IFRS measure. See convenience gross margin definition above. Convenience gross margin growth at constant foreign exchange is a non-IFRS measure. This metric requires a calculation of the comparative convenience gross margin ($ million) at current period foreign exchange rates (constant foreign exchange) and compares the current period value with the restated comparative period value, which results in the growth % at constant foreign exchange rates. bp believes the convenience gross margin growth at constant foreign exchange are useful measures because these measures may help investors to understand and evaluate, in the same way as management, our progress against our strategic objectives of redefining convenience. The nearest IFRS measure to convenience gross margin is RC profit before interest and tax for the customer & products segment.

Convenience & EV gross margin growth (%)

Non-IFRS measure. See convenience gross margin and EV gross margin definitions. Convenience and EV gross margin growth at constant foreign exchange is a non-IFRS measure. This metric, as applicable to the directors' remuneration performance measure, requires a calculation of the comparative convenience and EV gross margin ($ million) at current period foreign exchange rates (constant foreign exchange) and compares the current period value with the restated comparative period value, which results in the growth % at constant foreign exchange rates. The nearest IFRS measure to convenience gross margin and EV gross margin is RC profit before interest and tax for the customer & products segment.

Cumulative cash costs reductions

Non-IFRS measure. Cash costs is defined as production and manufacturing expenses plus distribution and administration expenses and excludes costs that are classified as adjusting items and costs that are variable, primarily with volumes (such as freight costs). It also includes exploration geological and geophysical costs, which are included in the exploration expenses line in the group income statement. Cumulative cash cost reductions by the end of 2022 compared to 2019 baseline, as applicable to the directors' remuneration performance measure, are defined as reinvent headcount savings, restructuring, location, agile, operational and other savings, less agreed portfolio changes and costs in direct support of growth.

Customer touchpoints

Customer touchpoints are the number of retail customer transactions per day on bp forecourts globally. These include transactions involving fuel and/or convenience across all channels of trade.

Developed renewables to final investment decision (FID)

Total generating capacity for assets developed to FID by all entities where bp has an equity share (proportionate to equity share). If asset is subsequently sold bp will continue to record capacity as developed to FID. If bp equity share increases developed capacity to FID will increase proportionately to share increase for any assets where bp held equity at the point of FID.

Divestment proceeds
Disposal proceeds as per the group cash flow statement.

Dividend yield
Sum of the four quarterly dividends announced in respect of the year as a percentage of the year-end share price.

Dutch Title Transfer Facility
The TTF (Title Transfer Facility) is the virtual trading point for natural gas in the Netherlands. It is commonly used as a benchmark hub for gas prices in Europe.

Effective tax rate (ETR) on replacement cost (RC) profit or loss
Non-IFRS measure. The ETR on RC profit or loss is calculated by dividing taxation on a RC basis by RC profit or loss before tax. Taxation on a RC basis for the group is calculated as taxation as stated on the group income statement adjusted for taxation on inventory holding gains and losses. Information on RC profit or loss is provided below. bp believes it is helpful to disclose the ETR on RC profit or loss because this measure excludes the impact of price changes on the replacement of inventories and allows for more meaningful comparisons between reporting periods. Taxation on a RC basis and ETR on RC profit or loss are non-IFRS measures. The nearest equivalent measure on an IFRS basis is the ETR on profit or loss for the period. A reconciliation to IFRS information is provided on page 382.

Electric vehicle charge points / EV charge points
Defined as the number of connectors on a charging device, operated by either bp or a bp joint venture, as adjusted to be reflective of bp's accounting share of joint arrangements.

EV gross margin
Non-IFRS measure. EV gross margin, as applicable to the directors' remuneration performance measure, is calculated as RC profit before interest and tax for the customers & products segment, excluding RC profit before interest and tax for the refining & trading business (a non-IFRS measure), and adjusting items★ (as defined above) for the convenience & mobility business to derive underlying RC profit before interest and tax for the convenience & mobility business; subtracting underlying RC profit before interest and tax for the Castrol business; adding back depreciation, depletion and amortization, production and manufacturing, distribution and administration expenses for convenience & mobility (excluding Castrol); subtracting earnings from equity-accounted entities in the convenience & mobility business (excluding Castrol) and gross margin for the convenience and retail fuels, aviation, B2B and midstream businesses. The nearest IFRS measure to EV gross margin is RC profit before interest and tax for the customer & products segment.

Fair value accounting effects
Non-IFRS adjustments to our IFRS profit (loss).They reflect the difference between the way bp manages the economic exposure and internally measures performance of certain activities and the way those activities are measured under IFRS. Fair value accounting effects are included within adjusting items. They relate to certain of the group's commodity, interest rate and currency risk exposures as detailed below. Other than as noted below, the fair value accounting effects described are reported in both the gas & low carbon energy and customer & products segments.

bp uses derivative instruments to manage the economic exposure relating to inventories above normal operating requirements of crude oil, natural gas and petroleum products. Under IFRS, these inventories are recorded at historical cost. The related derivative instruments, however, are required to be recorded at fair value with gains and losses recognized in the income statement. This is because hedge accounting is either not permitted or not followed, principally due to the impracticality of effectiveness-testing requirements. Therefore, measurement differences in relation to recognition of gains and losses occur. Gains and losses on these inventories, other than net realizable value provisions, are not recognized until the commodity is sold in a subsequent accounting period. Gains and losses on the related derivative commodity contracts are recognized in the income statement, from the time the derivative commodity contract is entered into, on a fair value basis using forward prices consistent with the contract maturity.

bp enters into physical commodity contracts to meet certain business requirements, such as the purchase of crude for a refinery or the sale of bp's gas production. Under IFRS these physical contracts are treated as derivatives and are required to be fair valued when they are managed as part of a larger portfolio of similar transactions. Gains and losses arising are recognized in the income statement from the time the derivative commodity contract is entered into.

IFRS require that inventory held for trading is recorded at its fair value using period-end spot prices, whereas any related derivative commodity instruments are required to be recorded at values based on forward prices consistent with the contract maturity. Depending on market conditions, these forward prices can be either higher or lower than spot prices, resulting in measurement differences.

bp enters into contracts for pipelines and other transportation, storage capacity, oil and gas processing, liquefied natural gas (LNG) and certain gas and power contracts that, under IFRS, are recorded on an accruals basis. These contracts are risk-managed using a variety of derivative instruments that are fair valued under IFRS. This results in measurement differences in relation to recognition of gains and losses.

The way that bp manages the economic exposures described above, and measures performance internally, differs from the way these activities are measured under IFRS. bp calculates this difference for consolidated entities by comparing the IFRS result with management's internal measure of performance. We believe that disclosing management's estimate of this difference provides useful information for investors because it enables investors to see the economic effect of these activities as a whole.

These include:

- Under management's internal measure of performance the inventory, transportation and capacity contracts in question are valued based on fair value using relevant forward prices prevailing at the end of the period.
- Fair value accounting effects also include changes in the fair value of the near-term portions of LNG contracts that fall within bp's risk management framework. LNG contracts are not considered derivatives, because there is insufficient market liquidity, and they are therefore accrual accounted under IFRS. However, oil and natural gas derivative financial instruments used to risk manage the near-term portions of the LNG contracts are fair valued under IFRS. The fair value accounting effect, which is reported in the gas and low carbon energy segment, represents the change in value of LNG contracts that are being risk managed and which is reflected in the underlying result, but not in reported earnings. Management believes that this gives a better representation of performance in each period.

Furthermore, the fair values of derivative instruments used to risk manage certain other oil, gas, power and other contracts, are deferred to match with the underlying exposure. The commodity contracts for business requirements are accounted for on an accruals basis.

In addition, fair value accounting effects include changes in the fair value of derivatives entered into by the group to manage currency exposure and interest rate risks relating to hybrid bonds to their respective first call periods. The hybrid bonds which were issued on 17 June 2020 are classified as equity instruments and were recorded in the balance sheet at that date at their USD equivalent issued value. Under IFRS these equity instruments are not remeasured from period to period, and do not qualify for application of hedge accounting. The derivative instruments relating to the hybrid bonds, however, are required to be recorded at fair value with mark to market gains and losses recognized in the income statement. Therefore, measurement differences in relation to the recognition of gains and losses occur. The fair value accounting effect, which is reported in the other businesses & corporate segment, eliminates the fair value gains and losses of these derivative financial instruments that are recognized in the income statement. We believe that this gives a better representation of performance, by more appropriately reflecting the economic effect of these risk management activities, in each period.

Fast / Fast charging
Fast charging comprises rapid charging★ and ultra-fast charging★.

Finance debt ratio
Finance debt ratio is defined as the ratio of finance debt to the total of finance debt plus total equity.

★ See glossary on **page 373**

Gearing and net debt

Non-IFRS measures. Net debt is calculated as finance debt, as shown in the balance sheet, plus the fair value of associated derivative financial instruments that are used to hedge foreign currency exchange and interest rate risks relating to finance debt, for which hedge accounting is applied, less cash and cash equivalents. Net debt does not include accrued interest, which is reported within other receivables and other payables on the balance sheet and for which the associated cash flows are presented as operating cash flows in the group cash flow statement. Gearing is defined as the ratio of net debt to the total of net debt plus total equity. bp believes these measures provide useful information to investors. Net debt enables investors to see the economic effect of finance debt, related hedges and cash and cash equivalents in total. Gearing enables investors to see how significant net debt is relative to total equity. The derivatives are reported on the balance sheet within the headings 'Derivative financial instruments'. See Financial statements – Note 27 for information on finance debt, which is the nearest equivalent measure to net debt on an IFRS basis. The nearest equivalent IFRS measure to gearing on an IFRS basis is finance debt ratio.

We are unable to present reconciliations of forward-looking information for net debt or gearing to finance debt and total equity, because without unreasonable efforts, we are unable to forecast accurately certain adjusting items required to present a meaningful comparable IFRS forward-looking financial measure. These items include fair value asset (liability) of hedges related to finance debt and cash and cash equivalents, that are difficult to predict in advance in order to include in an IFRS estimate.

Gearing including leases and net debt including leases

Non-IFRS measures. Net debt including leases is calculated as net debt plus lease liabilities, less the net amount of partner receivables and payables relating to leases entered into on behalf of joint operations. Gearing including leases is defined as the ratio of net debt including leases to the total of net debt including leases plus total equity. bp believes these measures provide useful information to investors as they enable investors to understand the impact of the group's lease portfolio on net debt and gearing. See Financial statements – Note 27 for information on finance debt, which is the nearest equivalent measure to net debt including leases on an IFRS basis. The nearest equivalent IFRS measure to gearing including leases on an IFRS basis is finance debt ratio. A reconciliation to IFRS information is provided on page 339.

Green hydrogen

Hydrogen produced by electrolysis of water using renewable power.

Grey hydrogen

Produced via natural gas or coal without CCUS.

Hydrocarbons

Liquids and natural gas. Natural gas is converted to oil equivalent at 5.8 billion cubic feet = 1 million barrels.

Hydrogen pipeline

Hydrogen projects which have not been developed to final investment decision (FID) but which have advanced to the concept development stage.

Inorganic capital expenditure

A subset of capital expenditure on a cash basis and a non-IFRS measure. Inorganic capital expenditure comprises consideration in business combinations and certain other significant investments made by the group. It is reported on a cash basis. bp believes that this measure provides useful information as it allows investors to understand how bp's management invests funds in projects which expand the group's activities through acquisition. The nearest equivalent measure on an IFRS basis is capital expenditure on a cash basis. Further information and a reconciliation to IFRS information is provided on page 336.

Installed renewables capacity

Installed renewables capacity is bp's share of capacity for operating assets owned by entities where bp has an equity share.

Inventory holding gains and losses

Inventory holding gains and losses are non-IFRS adjustments to our IFRS profit (loss) and represent:

- The difference between the cost of sales calculated using the replacement cost of inventory and the cost of sales calculated on the first-in first-out (FIFO) method after adjusting for any changes in provisions where the net realizable value of the inventory is lower than its cost. Under the FIFO method, which we use for IFRS reporting of inventories other than for trading inventories, the cost of inventory charged to the income statement is based on its historical cost of purchase or manufacture, rather than its replacement cost. In volatile energy markets, this can have a significant distorting effect on reported income. The amounts disclosed as inventory holding gains and losses represent the difference between the charge to the income statement for inventory on a FIFO basis (after adjusting for any related movements in net realizable value provisions) and the charge that would have arisen based on the replacement cost of inventory. For this purpose, the replacement cost of inventory is calculated using data from each operation's production and manufacturing system, either on a monthly basis, or separately for each transaction where the system allows this approach.
- An adjustment relating to certain trading inventories that are not price risk managed which relate to a minimum inventory volume that is required to be held to maintain underlying business activities. This adjustment represents the movement in fair value of the inventories due to prices, on a grade-by-grade basis, during the period. This is calculated from each operation's inventory management system on a monthly basis using the discrete monthly movement in market prices for these inventories.

The amounts disclosed are not separately reflected in the financial statements as a gain or loss. No adjustment is made in respect of the cost of inventories held as part of a trading position and certain other temporary inventory positions that are price risk-managed. See Replacement cost (RC) profit or loss definition below.

Joint arrangement

An arrangement in which two or more parties have joint control.

Joint control

Contractually agreed sharing of control over an arrangement, which exists only when decisions about the relevant activities require the unanimous consent of the parties sharing control.

Joint operation

A joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.

Joint venture

A joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement.

Liquids

Comprises crude oil, condensate and natural gas liquids. For the oil production & operations segment, it also includes bitumen.

LNG portfolio

LNG portfolio refers to bp group's LNG equity production plus additional long-term merchant LNG volumes.

LNG train

An LNG train is a processing facility used to liquefy and purify natural gas in the formation of LNG.

Low carbon activity

An activity relating to low carbon including: renewable electricity; bioenergy; electric vehicles and other future mobility solutions; trading and marketing low carbon products; blue or green hydrogen★ and carbon capture, use and storage (CCUS).

Note that, while there is some overlap of activities, these terms do not mean the same as bp's strategic focus area of low carbon energy or our low carbon energy sub-segment, reported within the gas & low carbon energy segment.

Low carbon activity investment

Capital investment in relation to low carbon activity★.

Major projects

Have a bp net investment of at least $250 million, or are considered to be of strategic importance to bp or of a high degree of complexity.

Operating cash flow

Net cash provided by (used in) operating activities as stated in the group cash flow statement. When used in the context of a segment rather than the group, the terms refer to the segment's share thereof.

Operating management system (OMS)

bp's OMS helps us manage risks in our operating activities by setting out bp's principles for good operating practice. It brings together bp requirements on health, safety, security, the environment, social responsibility and operational reliability, as well as related issues, such as maintenance, contractor relations and organizational learning, into a common management system.

Organic capital expenditure

Non-IFRS measure. Organic capital expenditure comprises capital expenditure on a cash basis less inorganic capital expenditure. bp believes that this measure provides useful information as it allows investors to understand how bp's management invests funds in developing and maintaining the group's assets. The nearest equivalent measure on an IFRS basis is capital expenditure on a cash basis. An analysis of organic capital expenditure by segment and region, and a reconciliation to IFRS information is provided on page 336.

We are unable to present reconciliations of forward-looking information for organic capital expenditure to total cash capital expenditure, because without unreasonable efforts, we are unable to forecast accurately the adjusting item, inorganic capital expenditure, that is difficult to predict in advance in order to derive the nearest IFRS estimate.

Production-sharing agreement / contract (PSA / PSC)

An arrangement through which an oil and gas company bears the risks and costs of exploration, development and production. In return, if exploration is successful, the oil company receives entitlement to variable physical volumes of hydrocarbons, representing recovery of the costs incurred and a stipulated share of the production remaining after such cost recovery.

Rapid / Rapid charging

Rapid charging includes electric vehicle charging of greater or equal to 50kW and less than 150kW.

Realizations

Realizations are the result of dividing revenue generated from hydrocarbon sales, excluding revenue generated from purchases made for resale and royalty volumes, by revenue generating hydrocarbon production volumes. Revenue generating hydrocarbon production reflects the bp share of production as adjusted for any production which does not generate revenue. Adjustments may include losses due to shrinkage, amounts consumed during processing, and contractual or regulatory host committed volumes such as royalties. For the gas & low carbon energy and oil production & operations segments, realizations include transfers between businesses.

Refining availability

Represents Solomon Associates' operational availability for bp-operated refineries, which is defined as the percentage of the year that a unit is available for processing after subtracting the annualized time lost due to turnaround activity and all planned mechanical, process and regulatory downtime.

Refining marker margin (RMM)

The average of regional indicator margins weighted for bp's crude refining capacity in each region. Each regional marker margin is based on product yields and a marker crude oil deemed appropriate for the region. The regional indicator margins may not be representative of the margins achieved by bp in any period because of bp's particular refinery configurations and crude and product slate.

Replacement cost (RC) profit or loss / RC profit or loss attributable to bp shareholders

Reflects the replacement cost of inventories sold in the period and is calculated as profit or loss attributable to bp shareholders, adjusting for inventory holding gains and losses (net of tax). RC profit or loss for the group is not a recognized IFRS measure. bp believes this measure is useful to illustrate to investors the fact that crude oil and product prices can vary significantly from period to period and that the impact on our reported result under IFRS can be significant. Inventory holding gains and losses vary from period to period due to changes in prices as well as changes in underlying inventory levels. In order for investors to understand the operating performance of the group excluding the impact of price changes on the replacement of inventories, and to make comparisons of operating performance between reporting periods, bp's management believes it is helpful to disclose this measure. The nearest equivalent measure on an IFRS basis is profit or loss attributable to bp shareholders. See Financial statements – Note 5. A reconciliation to IFRS information is provided on page 382.

Reported recordable injury frequency

Reported recordable injury frequency measures the number of reported work-related employee and contractor incidents that result in a fatality or injury per 200,000 hours worked. This represents reported incidents occurring within bp's operational HSSE reporting boundary. That boundary includes bp's own operated facilities and certain other locations or situations.

Renewables pipeline

Renewable projects satisfying the criteria below until the point they can be considered developed to FID:

Site based projects that have obtained land exclusivity rights, or for power purchase agreement based projects an offer has been made to the counterparty, or for auction projects pre-qualification criteria has been met, or for acquisition projects post a binding offer has been accepted.

Reserves replacement ratio

The extent to which the year's production has been replaced by proved reserves added to our reserve base. The ratio is expressed in oil-equivalent terms and includes changes resulting from discoveries, improved recovery and extensions and revisions to previous estimates, but excludes changes resulting from acquisitions and disposals.

Retail sites

Retail sites include sites operated by dealers, jobbers, franchisees or brand licensees or joint venture (JV) partners, under the bp brand. These may move to and from the bp brand as their fuel supply agreement or brand licence agreement expires and are renegotiated in the normal course of business. Retail sites are primarily branded *bp, ARCO, Amoco, Aral, Thorntons*, and TravelCenters of America and also includes sites in India through our Jio-bp JV.

Return on average capital employed

Non-IFRS measure. Return on average capital employed (ROACE) is defined as underlying replacement cost profit, which is defined as profit or loss attributable to bp shareholders adjusted for inventory holding gains and losses, adjusting items and related taxation on inventory holding gains and losses and adjusting items total taxation, after adding back non-controlling interest and interest expense net of tax, divided by the average of the beginning and ending balances of total equity plus finance debt, excluding cash and cash equivalents and goodwill as presented on the group balance sheet over the periods presented. Interest expense before tax is finance costs as presented on the group income statement, excluding lease interest, the unwinding of the discount on provisions and other payables and other adjusting items reported in finance costs. bp believes it is helpful to disclose the ROACE because this measure gives an indication of the company's capital efficiency. The nearest IFRS measures of the numerator and denominator are profit or loss for the period attributable to bp shareholders and total equity respectively. The reconciliation of the numerator and denominator is provided on page 383.

We are unable to present forward-looking information of the nearest IFRS measures of the numerator and denominator for ROACE, because without unreasonable efforts, we are unable to forecast accurately certain adjusting items required to calculate a meaningful comparable IFRS forward-looking financial measure. These items include inventory holding gains or losses and interest net of tax, that are difficult to predict in advance in order to include in an IFRS estimate.

Strategic convenience sites

Strategic convenience sites are retail sites, within the bp portfolio, which sell bp-supplied vehicle energy (e.g. *bp, Aral, Arco, Amoco, Thorntons, bp pulse, TravelCenters of America* and *PETRO*) and either carry one of the strategic convenience brands (e.g. M&S, Rewe to Go) or a differentiated bp-controlled convenience offer. To be considered a strategic convenience site, the convenience offer should have a demonstrable level of differentiation in the market in which it operates. Strategic convenience site count includes sites under a pilot phase.

Subsidiary

An entity that is controlled by the bp group. Control of an investee exists when an investor is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee.

Surplus cash flow

Surplus cash flow does not represent the residual cash flow available for discretionary expenditures. It is a non-IFRS financial measure that should be considered in addition to, not as a substitute for or superior to, net cash provided by operating activities, reported in accordance with IFRS. The surplus cash flow forms part of bp's financial frame.

Surplus cash flow refers to the net surplus of sources of cash over uses of cash, after reaching the $35 billion net debt target. Sources of cash include net cash provided by operating activities, cash provided from investing activities and cash receipts relating to transactions involving non-controlling interests. Uses of cash include lease liability payments, payments on perpetual hybrid bond, dividends paid, cash capital expenditure, the cash cost of share buybacks to offset the dilution from vesting of awards under employee share schemes, cash payments relating to transactions involving non-controlling interests and currency translation differences relating to cash and cash equivalents as presented on the condensed group cash flow statement.

For 2022, the sources of cash includes other proceeds related to the proceeds from the disposal of a loan note related to the Alaska divestment. The cash was received in the fourth quarter 2021, was reported as a financing cash flow and was not included in other proceeds at the time due to potential recourse from the counterparty. The proceeds are being recognized as the potential recourse reduces.

The components of our sources of cash and uses of cash are provided on page 339.

Technical service contract (TSC)

Technical service contract is an arrangement through which an oil and gas company bears the risks and costs of exploration, development and production. In return, the oil and gas company receives entitlement to variable physical volumes of hydrocarbons, representing recovery of the costs incurred and a profit margin which reflects incremental production added to the oilfield.

Tier 1 and tier 2 process safety events

Tier 1 events are losses of primary containment from a process of greatest consequence – causing harm to a member of the workforce, damage to equipment from a fire or explosion, a community impact or exceeding defined quantities. Tier 2 events are those of lesser consequence. These represent reported incidents occurring within bp's operational HSSE reporting boundary. That boundary includes bp's own operated facilities and certain other locations or situations.

Tight oil and gas

Natural oil and gas reservoirs locked in hard sandstone rocks with low permeability, making the underground formation extremely tight.

Transition growth

Activities, represented by a set of transition growth engines, that transition bp toward its objective to be an integrated energy company, and that comprise our low carbon activity★ alongside other businesses that support transition, such as our power trading and marketing business and convenience.

Transition growth investment

Capital investment in relation to transition growth★, that is aligned to our aim 5 (to increase the proportion of investment we make into our non-oil and -gas businesses. For this purpose, we define 'oil and gas' activities as those primarily encompassing the production, refining and sale of fossil hydrocarbons and their products and those associated with the dedicated gas and oil trading businesses).

UK National Balancing Point

A virtual trading location for sale, purchase and exchange of UK natural gas. It is the pricing and delivery point for the Intercontinental Exchange natural gas futures contract.

Ultra fast / Ultra-fast charging

Electric vehicle charging of greater than or equal to 150kW.

Unconventionals

Resources found in geographic accumulations over a large area, that usually present additional challenges to development such as low permeability or high viscosity. Examples include shale gas and oil, coalbed methane, gas hydrates and natural bitumen deposits. These typically require specialized extraction technology such as hydraulic fracturing or steam injection.

Underlying effective tax rate (ETR)

Non-IFRS measure. The underlying ETR is calculated by dividing taxation on an underlying replacement cost (RC) basis by underlying RC profit or loss before tax. Taxation on an underlying RC basis for the group is calculated as taxation as stated on the group income statement adjusted for taxation on inventory holding gains and losses and adjusting items total taxation. Information on underlying RC profit or loss is provided below. Taxation on an underlying RC basis presented for the operating segments is calculated through an allocation of taxation on an underlying RC basis to each segment. bp believes it is helpful to disclose the underlying ETR because this measure may help investors to understand and evaluate, in the same manner as management, the underlying trends in bp's operational performance on a comparable basis, period on period. Taxation on an underlying RC basis and underlying ETR are non-IFRS measures. The nearest equivalent measure on an IFRS basis is the ETR on profit or loss for the period.

We are unable to present reconciliations of forward-looking information for underlying ETR to ETR on profit or loss for the period, because without unreasonable efforts, we are unable to forecast accurately certain adjusting items required to present a meaningful comparable IFRS forward-looking financial measure. These items include the taxation on inventory holding gains and losses and adjusting items, that are difficult to predict in advance in order to include in an IFRS estimate. A reconciliation to IFRS information is provided on page 382.

Underlying production

Production after adjusting for acquisitions and divestments and entitlement impacts in our production-sharing agreements (PSAs). 2023 underlying production, when compared with 2022, is production after adjusting for acquisitions and divestments, curtailments, and entitlement impacts in our production-sharing agreements/contracts and technical service contract.

Underlying replacement cost (RC) profit or loss / underlying RC profit or loss attributable to bp shareholders

Non-IFRS measure. RC profit or loss★ (as defined above) after excluding net adjusting items and related taxation. See page 337 for additional information on the adjusting items that are used to arrive at underlying RC profit or loss in order to enable a full understanding of the items and their financial impact. **Underlying RC profit or loss before interest and tax** for the operating segments or customers & products businesses is calculated as RC profit or loss (as defined above) including profit or loss attributable to non-controlling interests before interest and tax for the operating segments and excluding net adjusting items for the respective operating segment or business.

bp believes that underlying RC profit or loss is a useful measure for investors because it is a measure closely tracked by management to evaluate bp's operating performance and to make financial, strategic and operating decisions and because it may help investors to understand and evaluate, in the same manner as management, the underlying trends in bp's operational performance on a comparable basis, period on period, by adjusting for the effects of these adjusting items. The nearest equivalent measure on an IFRS basis for the group is profit or loss attributable to bp shareholders. The nearest equivalent measure on an IFRS basis for segments and businesses is RC profit or loss before interest and taxation. A reconciliation to IFRS information is provided on page 382 for the group and pages 39-47 for the segments.

Underlying RC profit or loss per share and underlying RC profit or loss per ADS

Non-IFRS measures. Earnings per share is defined in Note 11. Underlying RC profit or loss per ordinary share is calculated using the same denominator as earnings per share as defined in the consolidated financial statements. The numerator used is underlying RC profit or loss attributable to bp shareholders rather than profit or loss attributable to bp shareholders. Underlying RC profit or loss per ADS is calculated as outlined above for underlying RC profit or loss per share except the denominator is adjusted to reflect one ADS equivalent to six ordinary shares. bp believes it is helpful to disclose the underlying RC profit or loss per ordinary share and per ADS because these measures may help investors to understand and evaluate, in the same manner as management, the underlying trends in bp's operational performance on a comparable basis, period on period. The nearest equivalent measure on an IFRS basis is basic earnings per share based on profit or loss for the period attributable to bp shareholders. A reconciliation to IFRS information is provided on page 382.

upstream

upstream includes oil and natural gas field development and production within the gas & low carbon energy and oil production & operations segments. References to upstream exclude Rosneft.

upstream / hydrocarbon plant reliability

bp-operated upstream plant reliability is calculated taking 100% less the ratio of total unplanned plant deferrals divided by installed production capacity, excluding non-operated assets and bpx energy. Unplanned plant deferrals are associated with the topside plant and where applicable the subsea equipment (excluding wells and reservoir). Unplanned plant deferrals include breakdowns, which does not include Gulf of Mexico weather-related downtime.

upstream unit production costs

upstream unit production costs are calculated as production costs divided by units of production. Production costs do not include ad valorem and severance taxes. Units of production are barrels for liquids and thousands of cubic feet for gas. Amounts disclosed are for bp subsidiaries only and do not include bp's share of equity-accounted entities.

West Texas Intermediate (WTI)

A light sweet crude oil, priced at Cushing, Oklahoma, which serves as a benchmark price for purchases of oil in the US.

Working capital

Movements in inventories and other current and non-current assets and liabilities as stated in the group cash flow statement.

Trade marks

Trade marks of the bp group appear throughout this report. They include:

Aral, Aral pulse, BP, bp pulse, Castrol, Castrol ON, PETRO, Amoco, TA, Thorntons, Gigahub

Trade marks:

REWE to Go – a registered trade mark of REWE.

★ See glossary on **page 373**

Non-IFRS measures reconciliations

Reconciliation of profit or loss for the period to underlying RC profit or loss★

					$ million
	2023	2022	2021	2020	2019
Profit (loss) for the year attributable to bp shareholders	**15,239**	(2,487)	7,565	(20,305)	4,026
Inventory holding (gains) losses★, before tax	**1,236**	(1,351)	(3,655)	2,868	(667)
Taxation charge (credit) on inventory holding gains and losses	**(292)**	332	829	(667)	156
RC profit (loss)★ for the year	**16,183**	(3,506)	4,739	(18,104)	3,515
Net (favourable) adverse impact of adjusting items★, before tax	**(1,143)**	29,781	8,697	16,649	8,263
Adjusting items total taxation	**(1,204)**	1,378	(621)	(4,235)	(1,788)
Underlying RC profit or loss for the year	**13,836**	27,653	12,815	(5,690)	9,990

Reconciliation of basic earnings per ordinary share to underlying RC profit per ordinary share★

			Per ordinary share – cents
	2023	2022	2021
Profit (loss) for the year attributable to bp shareholders	**87.78**	(13.10)	37.57
Inventory holding (gains) losses★, before tax	**7.12**	(7.12)	(18.16)
Taxation charge (credit) on inventory holding gains and losses	**(1.69)**	1.75	4.12
	93.21	(18.47)	23.53
Net (favourable) adverse impact of adjusting items★, before tax	**(6.58)**	156.84	43.21
Taxation charge (credit) on adjusting items	**(6.94)**	7.26	(3.09)
Underlying RC profit for the year	**79.69**	145.63	63.65

Reconciliation of basic earnings per ADS to underlying RC profit per ADS★

			Per ADS – dollars
	2023	2022	2021
Profit (loss) for the year attributable to bp shareholders	**5.27**	(0.79)	2.25
Inventory holding (gains) losses★, before tax	**0.43**	(0.43)	(1.09)
Taxation charge (credit) on inventory holding gains and losses	**(0.11)**	0.11	0.25
	5.59	(1.11)	1.41
Net (favourable) adverse impact of adjusting items★, before tax	**(0.40)**	9.41	2.59
Taxation charge (credit) on adjusting items	**(0.41)**	0.44	(0.19)
Underlying RC profit for the year	**4.78**	8.74	3.82

Reconciliation of effective tax rate (ETR) to ETR on RC profit or loss and underlying ETR★

Taxation (charge) credit

			$ million
	2023	2022	2021
Taxation on profit or loss before taxation for the year	**(7,869)**	(16,762)	(6,740)
Adjusted for taxation on inventory holding gains and losses	**292**	(332)	(829)
Taxation on a RC profit or loss basis	**(8,161)**	(16,430)	(5,911)
Adjusted for adjusting items total taxation	**1,204**	(1,378)	621
Taxation on an underlying RC basis	**(9,365)**	(15,052)	(6,532)

Effective tax rate

			%
	2023	2022	2021
ETR on profit or loss before taxation for the year	**33**	109	44
Adjusted for inventory holding gains and losses	**–**	8	7
ETR on RC profit or loss	**33**	117	51
Adjusted for adjusting items total taxation	**6**	(83)	(19)
Underlying ETR	**39**	34	32

Return on average capital employed (ROACE)★

					$ million
	2023	2022	2021	2020	2019
Profit (loss) for the year attributable to bp shareholders	**15,239**	(2,487)	7,565	(20,305)	4,026
Inventory holding (gains) losses★, before tax	**1,236**	(1,351)	(3,655)	2,868	(667)
Taxation charge (credit) on inventory holding gains and losses	**(292)**	332	829	(667)	156
Adjusting items★, before tax	**(1,143)**	29,781	8,697	16,649	8,263
Taxation charge (credit) on adjusting items	**(1,204)**	1,378	(621)	(4,235)	(1,788)
Underlying RC profit	**13,836**	27,653	12,815	(5,690)	9,990
Interest expense[a]	**2,569**	1,632	1,322	1,808	2,032
Taxation on interest expense	**(661)**	(296)	(195)	(406)	(288)
Non-controlling interests (NCI)	**641**	1,130	922	(424)	164
	16,385	30,119	14,864	(4,712)	11,898
Total equity	**85,493**	82,990	90,439	85,568	100,708
Finance debt	**51,954**	46,944	61,176	72,664	67,724
Capital employed	**137,447**	129,934	151,615	158,232	168,432
Less: Goodwill	**12,472**	11,960	12,373	12,480	11,868
Cash and cash equivalents	**33,030**	29,195	30,681	31,111	22,472
	91,945	88,779	108,561	114,641	134,092
Average capital employed excluding goodwill and cash and cash equivalents	**90,362**	98,670	111,601	124,367	133,050
Profit (loss) for the year attributable to bp shareholders divided by total equity	**17.8%**	(3.0)%	8.4%	(23.7)%	4.0%
ROACE	**18.1%**	30.5%	13.3%	(3.8)%	8.9%

[a] Finance costs, as reported in the Group income statement, were $3,840 million (2022 $2,703 million, 2021 $2,857 million, 2020 $3,115 million, 2019 $3,489 million). Interest expense is finance costs excluding lease interest of $346 million (2022 $257 million, 2021 $306 million, 2020 $350 million), unwinding of discount on provisions and other payables of $912 million (2022 $808 million, 2021 $890 million, 2020 $957 million, 2019 $1,074 million) and other adjusting items related to finance costs of $13 million (2022 $6 million, 2021 $339 million).

Adjusted EBIDA★

			$ million
	2023	2022	2021
Profit (loss) for the period	**15,880**	(1,357)	8,487
Finance costs	**3,840**	2,703	2,857
Net finance (income) expense relating to pensions and other post-retirement benefits	**(241)**	(69)	(2)
Taxation	**7,869**	16,762	6,740
Profit before interest and tax	**27,348**	18,039	18,082
Inventory holding (gains) losses, before tax	**1,236**	(1,351)	(3,655)
	28,584	16,688	14,427
Net (favourable) adverse impact of adjusting items, before interest and tax	**(1,548)**	29,356	7,915
	27,036	46,044	22,342
Taxation on an underlying RC basis[a]	**(9,365)**	(15,052)	(6,532)
	17,671	30,992	15,810
Add back:			
Depreciation, depletion and amortization	**15,928**	14,318	14,805
Exploration expenditure written off	**746**	385	168
Adjusted EBIDA	**34,345**	45,695	30,783

[a] A definition for taxation on an underlying RC basis is included under Underlying ETR in the glossary on page 380.

★ See glossary on **page 373**

Adjusted EBITDA★

			$ million
	2023	2022	2021
Profit (loss) for the period	**15,880**	(1,357)	8,487
Finance costs	**3,840**	2,703	2,857
Net finance (income) expense relating to pensions and other post-retirement benefits	**(241)**	(69)	(2)
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	28,584	16,688	14,427
Net (favourable) adverse impact of adjusting items, before interest and tax	**(1,548)**	29,356	7,915
Underlying RC profit (loss) before interest and tax	**27,036**	46,044	22,342
Add back:			
Depreciation, depletion and amortization	**15,928**	14,318	14,805
Exploration expenditure written off	**746**	385	168
Adjusted EBITDA	**43,710**	60,747	37,315

Reconciliation of RC profit before interest and tax for gas & low carbon energy and oil production & operations to adjusted EBITDA★

			$ million
	2023	2022	2021
gas & low carbon energy			
RC profit before interest and tax	**14,080**	14,696	2,133
Less: Net favourable (adverse) impact of adjusting items★	**5,358**	(1,367)	(5,395)
Underlying RC profit before interest and tax★	**8,722**	16,063	7,528
Add back: Depreciation, depletion and amortization	**5,680**	5,008	4,464
Exploration expenditure written off	**362**	2	43
Adjusted EBITDA	**14,764**	21,073	12,035
oil production & operations			
RC profit before interest and tax	**11,191**	19,721	10,501
Less: Net favourable (adverse) impact of adjusting items	**(1,590)**	(503)	209
Underlying RC profit before interest and tax	**12,781**	20,224	10,292
Add back: Depreciation, depletion and amortization	**5,692**	5,564	6,528
Exploration expenditure written off	**384**	383	125
Adjusted EBITDA	**18,857**	26,171	16,945

The Directors' report on pages 81-104, 105 (in respect of the remuneration committee), 133-135, 247-274 and 335-384 was approved by the board and signed on its behalf by Ben J. S. Mathews, company secretary on 8 March 2024.

BP p.l.c.
Registered in England and Wales No. 102498

Signatures

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

BP p.l.c.
(Registrant)

/s/ Ben J. S. Mathews
Company secretary
8 March 2024

Cross reference to Form 20-F

Information about this report

This document constitutes the Annual Report and Accounts in accordance with UK requirements and the Annual Report on Form 20-F in accordance with the US Securities Exchange Act of 1934, for BP p.l.c. for the year ended 31 December 2023. A cross reference to Form 20-F requirements is included on page 386.

This document contains the Strategic report on the inside front cover and pages 1-80 and the Directors' report on pages 81-104, 105 (in part only), 133-135, 247-274 and 335-384. The Strategic report and the Directors' report together include the management report required by DTR 4.1 of the UK Financial Conduct Authority's Disclosure Guidance and Transparency Rules. The Directors' remuneration report is on pages 105-132. The consolidated financial statements of the group are on pages 137-246 and the corresponding reports of the auditor are on pages 138-163. The parent company financial statements of BP p.l.c. are on pages 275-334.

The Directors' statements (comprising the Statement of directors' responsibilities; Risk management and internal control; Longer-term viability; Going concern; and Fair, balanced and understandable), the independent auditor's report on the annual report and accounts to the members of BP p.l.c., the parent company financial statements of BP p.l.c. and corresponding auditor's report do not form part of bp's Annual Report on Form 20-F as filed with the SEC.

bp Annual Report and Form 20-F 2023 may be downloaded from *bp.com/annualreport*. No material on the bp website, other than the items identified as *bp Annual Report* and *Form 20-F 2023*, forms any part of this document. References in this document to other documents on the bp website, such as *bp Energy Outlook*, *bp Net Zero Ambition Progress Update* and *bp Sustainability Report* are included as an aid to their location and are not incorporated by reference into this document.

BP p.l.c. is the parent company of the bp group of companies. The company was incorporated in 1909 in England and Wales and changed its name to BP p.l.c. in 2001. Where we refer to the company, we mean BP p.l.c. The company and each of its subsidiaries★ are separate legal entities. Unless otherwise stated or the context otherwise requires, the term "BP" or "bp" and terms such as "we", "us" and "our" are used in this report for convenience to refer to one or more of the members of the bp group instead of identifying a particular entity or entities. Information in this document reflects 100% of the assets and operations of the company and its subsidiaries that were consolidated at the date or for the periods indicated, including non-controlling interests.

The company's primary share listing is the London Stock Exchange. In the US, the company's securities are traded on the New York Stock Exchange (NYSE) in the form of ADSs (see page 364 for more details) and in Germany in the form of a global depositary certificate representing bp ordinary shares traded on the Frankfurt, Hamburg and Düsseldorf Stock Exchanges.

The term 'shareholder' in this report means, unless the context otherwise requires, investors in the equity capital of BP p.l.c., both direct and indirect. As the company's shares, in the form of ADSs, are listed on the NYSE, an Annual Report on Form 20-F is filed with the SEC. Ordinary shares are ordinary fully paid shares in BP p.l.c. of 25 cents each. Preference shares are cumulative first preference shares and cumulative second preference shares in BP p.l.c. of £1 each.

Registered office and our worldwide headquarters:	**Our agent in the US:**
BP p.l.c.	**BP America Inc.**
1 St James's Square	501 Westlake Park Boulevard
London SW1Y 4PD	Houston, Texas 77079
UK	US
Tel +44 (0)20 7496 4000	Tel +1 281 366 2000

Registered in England and Wales No. 102498.
London Stock Exchange symbol 'BP.'

Exhibits

The following documents are filed in the Securities and Exchange Commission (SEC) EDGAR system, as part of this Annual Report on Form 20-F, and can be viewed on the SEC's website.

Exhibit 1	Memorandum and Articles of Association of BP p.l.c.***†
Exhibit 2	Description of rights of each class of securities registered under Section 12 of the Securities Exchange Act of 1934†
Exhibit 4.1	The BP Executive Directors' Incentive Plan**†
Exhibit 4.4	Director's Service Agreement for K Thomson†
Exhibit 4.7	Director's Service Agreement for M Auchincloss†
Exhibit 4.10	The BP Share Award Plan 2015***†
Exhibit 8	Subsidiaries (included as Note 37 to the Financial Statements)
Exhibit 11	Code of Ethics*†
Exhibit 12	Rule 13a – 14(a) Certifications†
Exhibit 13	Rule 13a – 14(b) Certifications#†
Exhibit 15.1	Consent of Netherland, Sewell & Associates†
Exhibit 15.2	Report of Netherland, Sewell & Associates†
Exhibit 15.3	Consent Decree***†
Exhibit 15.4	Gulf states Settlement Agreement***†
Exhibit 15.5	Consent of Deloitte LLP†
Exhibit 17	Guaranteed Securities†
Exhibit 97	Executive Compensation Clawback Policy
Exhibit 101	Inline XBRL data files
Exhibit 104	Cover page interactive data file (formatted as Inline XBRL and contained in Exhibit 101)

* Incorporated by reference to the company's Annual Report on Form 20-F for the year ended 31 December 2009.
** Incorporated by reference to the company's Annual Report on Form 20-F for the year ended 31 December 2014.
*** Incorporated by reference to the company's Annual Report on Form 20-F for the year ended 31 December 2015.
**** Incorporated by reference to the company's Annual Report on Form 20-F for the year ended 31 December 2019.
***** Incorporated by reference to the company's Annual Report on Form 20-F for the year ended 31 December 2020.
# Furnished only.
† Included only in the annual report filed in the Securities and Exchange Commission EDGAR system.

The total amount of long-term securities of BP p.l.c. and its subsidiaries under any one instrument does not exceed 10% of their total assets on a consolidated basis.

The company agrees to furnish copies of any or all such instruments to the SEC on request.

★ See glossary on **page 373**

FSC
www.fsc.org
RECYCLED
Paper made from recycled material
FSC® C022913

Paper: Revive 100 Offset, a Forest Stewardship Council® (FSC®) certified paper from responsible sources made from post-consumer waste. The paper is carbon balanced at source by World Land Trust™. The manufacturing mill is ISO14001 registered and is FSC® chain-of-custody certified. Printed by Pureprint a CarbonNeutral® company with FSC® chain of custody and an ISO14001 certified environmental management system.

bp's corporate reporting suite includes information about our financial and operating performance, sustainability performance and global energy trends and projections.

bp.com

bp Annual Report and Form 20-F 2023
Details of our financial and operating performance in print and online.

bp.com/annualreport

bp Sustainability Report 2023
Details of our sustainability performance with additional information online.

bp.com/sustainability

bp Net Zero Ambition Progress Update 2023
Focuses on bp's net zero ambition: why we believe it's consistent with the Paris goals, our planned actions to deliver this decade and our progress to date.

bp.com/netzeroreport

bp Energy Outlook 2023
Provides our projections of future energy trends and factors that could affect them out to 2040.

bp.com/energyoutlook

Group databook 2019-2023
Five-year financial and operating data in PDF and Excel format.

bp.com/financial-disclosure

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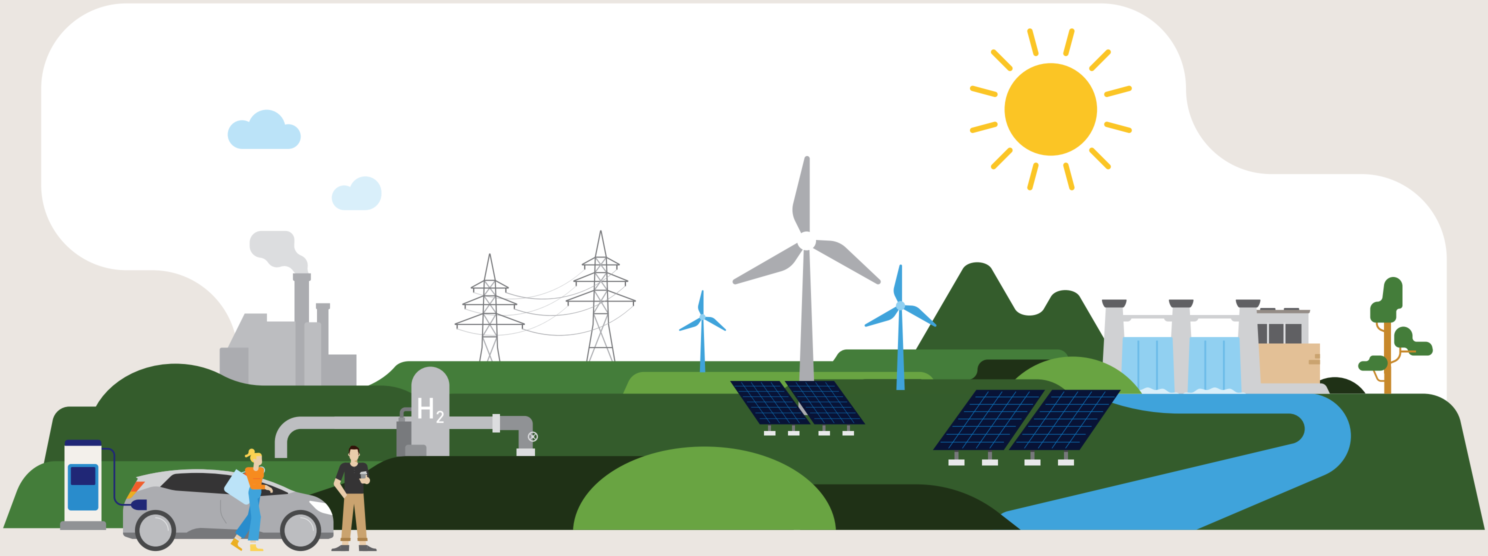
Your feedback is important to us. You can contact the corporate reporting team at

corporatereporting@bp.com

Shaping the future with energy



Integrated
Annual Report 2023

Performance indicators of the EnBW Group

Financial and strategic performance indicators

in € million	2023	2022	Change in %
External revenue	44,430.7	56,002.6	-20.7
TOP Adjusted EBITDA [1]	6,365.2	3,967.1	60.4
TOP Share of adjusted EBITDA accounted for by Smart Infrastructure for Customers in € million/in % [1]	239.5/3.8	498.4/12.6	-51.9/–
TOP Share of adjusted EBITDA accounted for by System Critical Infrastructure in € million/in % [1]	1,772.0/27.8	1,057.8/26.7	67.5/–
TOP Share of adjusted EBITDA accounted for by Sustainable Generation Infrastructure in € million/in % [1]	4,647.6/73.0	2,616.2/65.9	77.6/–
Share of adjusted EBITDA accounted for by Other/Consolidation in € million/in % [1]	-293.9/-4.6	-205.3/-5.2	-43.2/–
EBITDA	5,738.3	4,473.2	28.3
Adjusted EBIT [1]	4,678.9	2,351.9	98.9
EBIT	3,341.3	2,141.2	56.0
Adjusted Group net profit [1, 2]	2,779.5	1,413.1	96.7
Group net profit [2]	1,537.6	1,738.0	-11.5
EnBW share price as of 31/12	79.20	87.00	-9.0
Earnings per share from Group net profit (€) [2]	5.68	6.42	-11.5
Dividend per share (€) / dividend payout ratio in % [3, 4]	1.50/15	1.10/31	36.4/–
Retained cash flow [1]	4,831.5	3,216.5	50.2
TOP Debt repayment potential in % [1, 5]	41.3	29.7	–
Net cash investment	2,739.8	2,767.7	-1.0
Net debt [5]	11,703.1	10,847.0	7.9
Net financial debt [5]	7,558.2	7,214.2	4.8
Return on capital employed (ROCE) in % [1]	17.6	10.9	–
Weighted average cost of capital before tax in %	7.4	6.8	–
Average capital employed	27,310.0	22,690.5	20.4
TOP Value spread in % [1]	10.2	4.1	–

Non-financial performance indicators

	2023	2022	Change in %
Customers and society goal dimension			
TOP Reputation Index	55	58	-5.2
TOP EnBW/Yello Customer Satisfaction Index	130/161	139/166	-6.5/-3.0
TOP SAIDI electricity in min./year	19.3	16.6	16.3
Environment goal dimension			
TOP Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %	5.7/46.9	5.4/41.7	5.6/12.5
TOP CO_2 intensity in g/kWh [6]	347	491	-29.3
Employees goal dimension			
TOP People Engagement Index (PEI) [7]	82	81	1.2
TOP LTIF for companies controlled by the Group [8, 9] / LTIF overall [8]	2.4/3.7	2.6/4.1	-7.7/-9.8

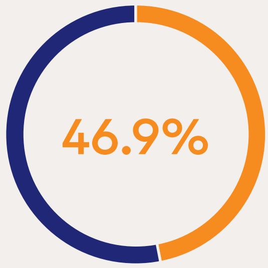
Employees [10]

	31/12/2023	31/12/2022	Change in %
Employees	28,630	26,980	6.1
Employee equivalents [11]	26,943	25,339	6.3

1 The figures for the previous year have been restated.
2 In relation to the profit/loss attributable to the shareholders of EnBW AG.
3 The dividend payout ratio for 2022 was calculated based on the adjusted Group net profit before the restatement of the figure for the previous year.
4 For 2023, subject to approval from the ordinary Annual General Meeting on 07/05/2024.
5 For the calculation of the net debt and debt repayment potential, please refer to the section "The EnBW Group" of the management report.
6 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW. If the share of positive redispatch that cannot be controlled by EnBW is taken into account, CO_2 intensity would be 393 g/kWh for the reporting year (previous year: 508 g/kWh). CO_2 intensity including nuclear generation for the reporting year was 366 g/kWh (previous year: 401 g/kWh). We publish a five-year comparison of the performance indicators in our "Multi-year overview" on p. 312↗.
7 Variations in the group of consolidated companies (all companies with more than 100 employees are considered (except ITOs)).
8 The LTIF for companies controlled by the Group excluding waste management and LTIF overall, which includes the area of waste management, only includes companies with more than 100 employees excluding external agency workers and contractors.
9 Newly fully consolidated companies are not included for a maximum transition period of three years.
10 Number of employees excluding apprentices/trainees and inactive employees.
11 Converted into full-time equivalents.

Selected performance indicators 2023

EnBW at a glance



The share of the generation capacity accounted for by renewable energies (RE)
Expansion in RE capacity: 284 MW
More details on p. 93 f.↗

in MW	2023
Thermal power plants	6,498
Renewable energies	5,728
Installed output	12,226

Our business portfolio is split into three segments:

Smart Infrastructure for Customers

System Critical Infrastructure

Sustainable Generation Infrastructure

Our climate protection goals

2026 – **Commissioning of fuel switch projects** at sites in Heilbronn, Altbach/Deizisau and Stuttgart-Münster

2027 – Reduction in emissions[1] by **50%**

2028 – **Planned phaseout of coal**

2030 – Reduction in emissions[1] by **70%**

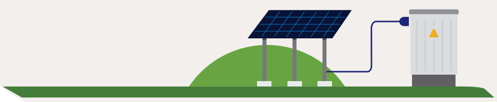
2035 – **Climate neutral in Scope 1 and 2[2]**

1 Reduction in Scope 1 and 2 emissions compared to the reference year 2018.
2 Achievement of our climate protection targets in line with the 1.5 degree path of the Paris Agreement.

More details on p. 30 ff.↗

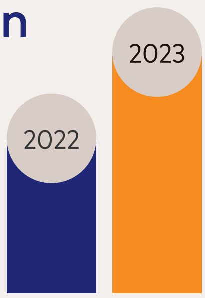
–29.3%

reduction in CO_2 intensity
347 g/kWh
More details on p. 95 ff.↗



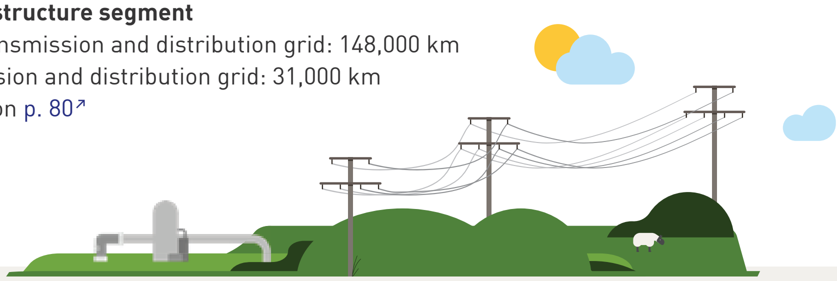
€6.4 billion

adjusted EBITDA
More details on p. 71 f.↗



€2,671.9 million

gross investment in the System Critical Infrastructure segment
Electricity transmission and distribution grid: 148,000 km
Gas transmission and distribution grid: 31,000 km
More details on p. 80↗



People Engagement Index (PEI)

82 points

More details on p. 101↗

Over 600,000

charging points in the EnBW HyperNetwork
in 17 countries in Europe (as of March 2024)
More details on p. 90↗

28,630

employees and 1,212 trainees and students
More details on p. 104↗

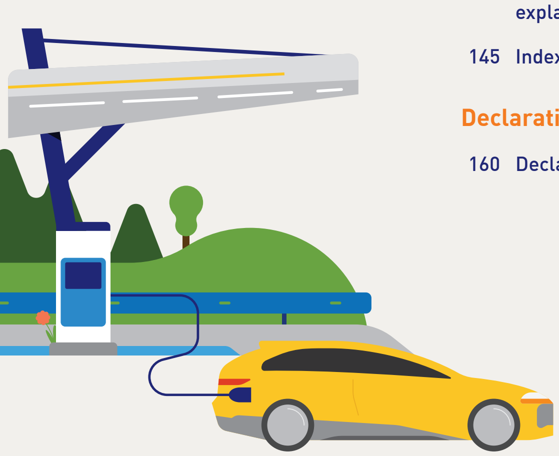
5.5 million

customers B2C and B2B
More details on p. 25↗

€5.5 billion

green bonds (as of January 2024)
successfully placed on the market since 2018
More details on p. 32↗

Contents



About this report

Integrated reporting

Further information on **integrated reporting** at EnBW can be found on our website.

Online ↗

We have been publishing an Integrated Annual Report based on the recommendations of the International Integrated Reporting Framework since 2014, which combines the traditional contents of a financial report with a sustainability report. We do this in order to provide a holistic representation of the performance of the company. The dimensions of ecology, economy and social aspects are firmly embedded in the EnBW 2025 strategy, reflecting the highly integrated nature of our corporate management system. An important element is measuring the achievement of our goals using key performance indicators.

Important aspects of reporting

Further information on our **experiences with applying the EU sustainable finance taxonomy** can be found here.

Online ↗

EnBW started reporting on the EU taxonomy on a voluntary basis in the 2020 financial year and has been continuously developing its reporting since then. Alongside the environmental objectives "climate change mitigation" and "climate change adaptation," the other four environmental objectives "sustainable use and protection of water and marine resources," "pollution prevention and control," "transition to a circular economy" and "protection and restoration of biodiversity and ecosystems" are now also being taken into account for the first time in the 2023 financial year. Alongside the information on revenue, capex and opex required by the Taxonomy Regulation, we also report on the taxonomy KPIs for adjusted EBITDA and capex including the proportion for entities accounted for using the equity method (expanded capex).

The reporting period comprises the 2023 financial year. We took into account all relevant information up to 11 March 2024. The identification of key themes for our reporting is anchored in the materiality analysis process (p. 43↗).

Further information on the **GRI content index** can be found here.

Online ↗

Our reporting is based on the International Integrated Reporting Framework and the recommendations issued by the Task Force on Climate-related Financial Disclosures (TCFD) (p. 146↗). The reporting of sustainability issues is based on the GRI Standards, including the Electric Utilities Sector Supplement. EnBW has reported for the period from 1 January to 31 December 2023 in compliance with the GRI Standards. An audit will be carried out in the second quarter of 2024 as part of the GRI content index service. Our sustainability reporting also complies with the Communication on Progress (COP) requirements for the UN Global Compact and is based to an increasing extent on the UN Sustainable Development Goals.

Presentation and auditing

The information about the net assets, financial position and results of operations of the EnBW Group is based on the requirements of the International Financial Reporting Standards (IFRS), and, where applicable, the German Commercial Code (HGB) and German Accounting Standards (GAS). On the basis of our integrated reporting, the non-financial declaration (p. 145 f.↗) pursuant to sections 315b and 289b HGB is fully integrated into the combined management report of the EnBW Group and EnBW AG and was audited with reasonable assurance by EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft. Any differences between statements made for the EnBW Group and for EnBW AG are clearly identified in the text.

A brief explanation of our Integrated Annual Report

How to read this report:

Link↗ Jump marks are linked to content within the PDF.

Online ↗ The "Online" button links you to additional content on the Internet.

TOP Key performance indicators

We have labeled all activities that made a contribution to the implementation of the EnBW Sustainability Agenda in the reporting period with this symbol.

Cross-references and Internet links do not form part of the audited management report.

Visit our Integrated Annual Report online. There you will find further information such as videos, key figure comparisons and much more.

Online ↗

Overview of the 2023 financial publications

Integrated Annual Report 2023
The report includes the combined management report of the EnBW Group and EnBW AG, the declaration of corporate management and the financial statements of the EnBW Group.

Declaration of corporate management 2023
This document is included in the Integrated Annual Report and is also available as a separate publication.

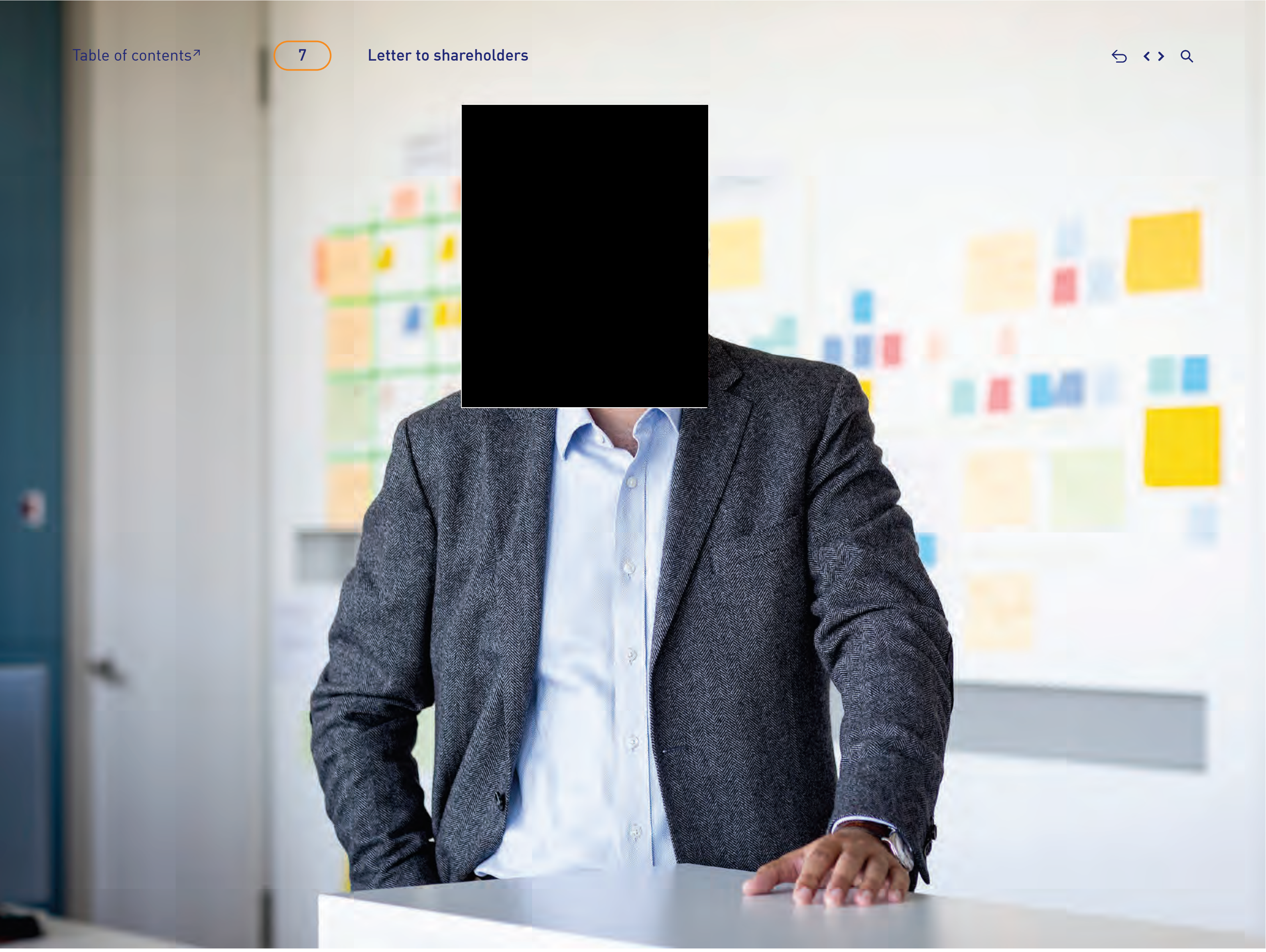
These and other documents such as tables and graphics can be found in our download center.

Online ↗

Financial statements of EnBW AG 2023

Remuneration report of EnBW AG 2023

All publications are exclusively available online.



Dr. Georg Stamatelopoulos
Chairman of the
Board of Management

Dear Readers,

As we look back on an eventful year marked by a prolonged war in Europe and weak growth in the European Union, EnBW has been able to show during this period that it is in a strong position and capable of quickly adapting to political and social change.

In 2023, we used all available production capacity at our power plant sites both on the market and to stabilize to grid. We have further expanded our renewable energy capacity, secured gas from additional sources and continued to keep supplies for our customers at the highest level. The crises of recent years have not stopped us from striving to achieve an ambitious goal: We want to become a climate-neutral company by 2035.

2035
is the year by which we want to achieve **climate neutrality** in Scopes 1 and 2.

We had this target certified by the Science Based Targets initiative (SBTi) in 2023. As far as renewable energy sources are concerned, we are already seeing positive developments: Last year, for the first time, they covered more than half of Germany's gross electricity consumption. In June, electricity generated by photovoltaic power plants in Germany reached a new all-time record figure of 9.8 billion kWh. As EnBW, we played our part last year with considerable investment, increasing the share of renewable energy sources in our generation capacity from around 42% to just under 47%.

1.1 million

households could be supplied with electricity following the construction of the **EnBW offshore wind farm He Dreiht.**

In addition, we have taken the decision to press ahead with a milestone project: the construction of our offshore wind farm aptly named He Dreiht – Low German for “It Spins.” With an output of 960 MW, it will be capable of supplying the equivalent of around 1.1 million households – or the residents of an entire city – with electricity. And it shouldn’t be forgotten that we will not receive any EEG funding for this project and will only generate revenue from operating the wind farm on the market, either through direct electricity sales or through long-term power purchase agreements (PPAs) with industrial companies.

For the energy transition to succeed, we also need to invest in flexible power plant capacity that is available at all times. This will become the natural partner of renewable energy sources at times when they are unable to cover the demand due to weather conditions or when the grid needs to be stabilized. Last year, we celebrated the start of construction work on our power plant modernization projects in Altbach/Deizisau and Stuttgart-Münster, followed by Heilbronn in February of this year. Lower-emission gas power plants are being built at all three sites, which are set to be powered by climate-neutral hydrogen in the 2030s. The previous coal power plants will be decommissioned once the new plants have been commissioned.

“The measures we put in place today will also benefit future generations.”

These new power plants are an impressive example of the further investment that we as a company need in order to achieve our goal of achieving climate neutrality by 2035. With the power plant strategy, the German government has announced the setting of an important political course for a suitable regulatory environment for this year. Decisive steps are also set to follow in terms of the hydrogen infrastructure and support for the hydrogen market ramp-up. We will look closely at how we can prioritize our investment on this basis.

Around

€900 million

is the sum we have invested over the past year in the **expansion of our distribution grid.**

At the same time, the expansion of renewable energy sources across a wider area and the electrification of heating and mobility will continue and in all likelihood be stepped up. That is why it remains important to expand our distribution grid. Last year, we invested around 900 million euros in strengthening and constructing power lines, upgrading substations and rolling out smart meters. In addition to the distribution grid, improving the connection with the windy north by upgrading the transmission grids is essential for securing the power supply in the south. The two major projects SuedLink and ULTRANET are making good progress – and I am delighted that construction work on the SuedLink converter in Leingarten began last year.

Around

€200 million

is the annual sum we invest in **e-mobility.**

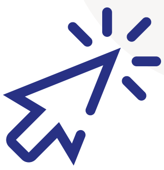
At EnBW, however, we are not only helping to bring about the energy transition, but also the transport transition. We are investing around 200 million euros annually in e-mobility. With our quick-charging solutions, we are providing attractive conditions for e-mobility in Germany and beyond – within the EnBW HyperNetwork, our customers can now charge their vehicles at over 600,000 points in 17 different countries (as of March 2024).

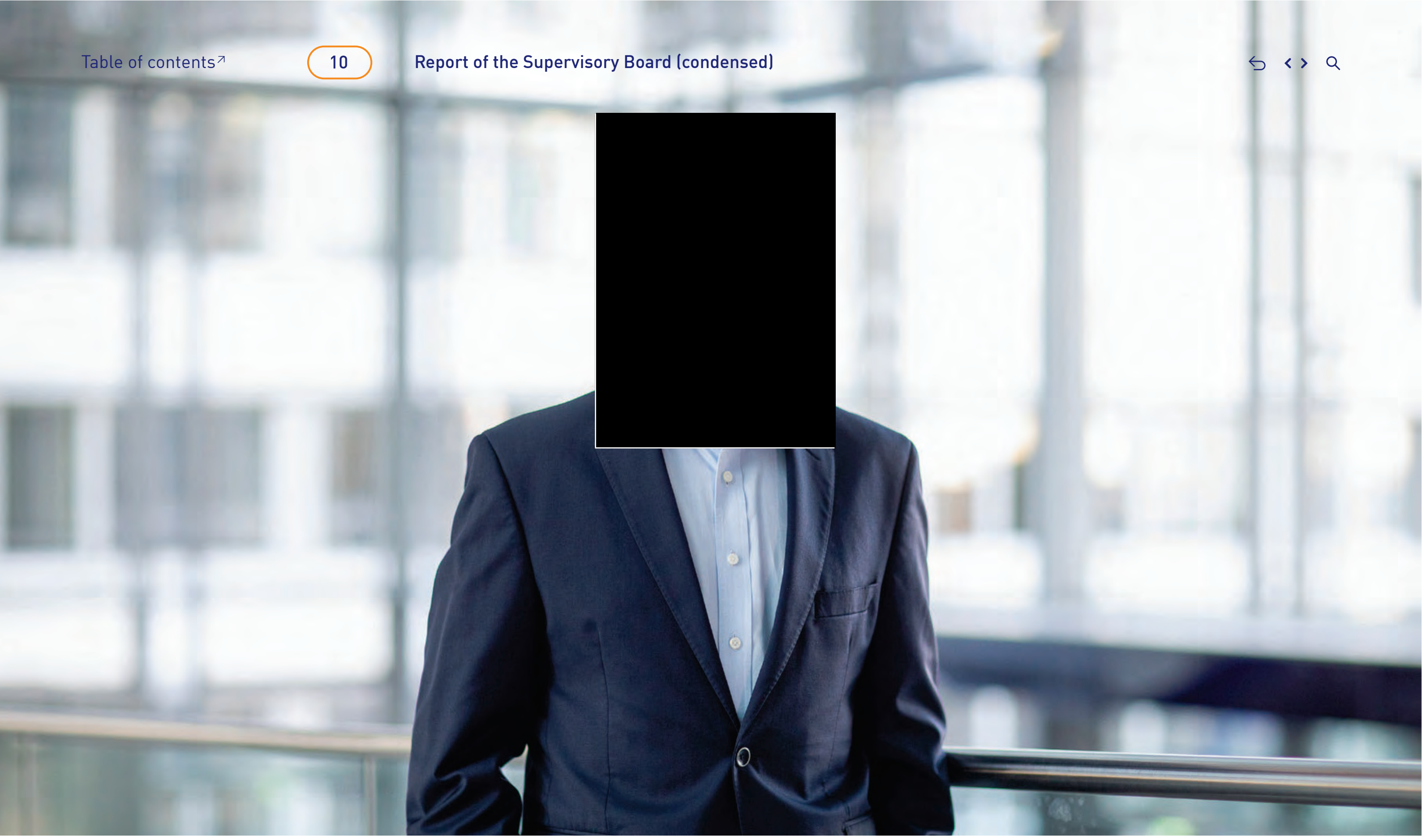
In the 2023 financial year, we achieved an adjusted EBITDA of 6.4 billion euros. This is a strong result that will allow us to pursue our ambitious investment program for the energy transition. We will be investing a gross figure of around 40 billion euros until 2030 – in renewable energy sources, in grids, in available power and in digital solutions for our customers. Most of the funds are being invested in projects in Germany. We are taking on a great deal of responsibility here, because this new infrastructure is designed to last for several decades. Our work is visible, our decisions are made for the long-term. The measures we put in place today will also benefit future generations. It is clear that the energy transition holds huge potential for us at EnBW, but above all for the future viability of the place we call home. Our investment in the energy transition provides the best protection against crises. It will make us less dependent on imports, improve our cost structures and protect our climate. I wish to thank my colleagues for their efforts over the past year. With their commitment, they have taken another step toward bringing about the energy transition. We want to continue on this path. Together, doing everything in our power.

[redacted]ulos
[redacted] of Management

You can also visit our website to read the Integrated Annual Report online. There you will find further information, such as our video featuring top subjects, key figure comparisons and much more besides.

Online ↗





Lutz Feldmann
- Born 1957
- Chairman of the Supervisory Board since May 2016

Curriculum vitae ↗

Report of the Supervisory Board

The Supervisory Board dutifully and comprehensively performed all of the tasks incumbent on it in the 2023 financial year as required by law and the Articles of Association. It regularly advised the Board of Management on its management of the company and continuously accompanied and monitored all important management measures for the Group. The supervisory and advisory activities of the Supervisory Board also dealt with issues related to sustainability, in particular. The Supervisory Board was involved in all decisions of fundamental importance to the company and the Group.

The Board of Management regularly, comprehensively and promptly informed the Supervisory Board about all relevant aspects of intended business policies and other fundamental issues relating to business planning, and also provided reasons for any discrepancies between the actual development of business and the plans and targets reported at an earlier date. In the reporting period, this once again included discussions on questions relating to the war between Russia and Ukraine and its impact on the business of EnBW and its subsidiaries. In addition, the Board of Management informed the Supervisory Board about the economic position of the company and the Group including, among other things, the profitability of the company (especially the equity), the development of business (especially the revenue and earnings, the net assets, financial position and results of operations, as well as HR development at the company) and those business transactions that could be of significant importance for the profitability or liquidity of the company. Furthermore, the Board of Management informed the Supervisory Board about the risk situation of the Group and of individual areas of the Group, corporate strategy and planning, risk management, the internal control system and compliance.

Key topics of the discussions at the plenary meetings of the Supervisory Board

In the 2023 financial year, the Supervisory Board dealt extensively with verbal and written reports and proposals for resolutions issued by the Board of Management at seven ordinary meetings on 15 February, 22 March, 11 May, 13 July, 28 September, 10 November and 7 December 2023 and two extraordinary meetings on 23 May and 27 November 2023. Furthermore, the Supervisory Board requested reports and information from the Board of Management on individual topics, which were comprehensively provided in a timely manner in each case. The discussions and resolutions at the plenary meetings of the Supervisory Board focused on the following key issues:

- Consultations and discussions with the Board of Management about the latest developments in the war between Russia and Ukraine and its impact
- Determining the level of the short-term single-year variable remuneration for members of the Board of Management for 2022 and the long-term multi-year variable remuneration for members of the Board of Management for 2020 (performance period 2020 to 2022)
- Selection of the sustainability criteria for the performance period 2024 to 2026 and defining the targets for the variable remuneration for members of the Board of Management for 2024
- Consultation on the annual compliance report and the agenda for the subsequent period
- Consultation on the annual data protection report and the agenda for the subsequent period
- Approval of the proposals to be made at the ordinary Annual General Meeting 2023, particularly those regarding the appropriation of retained earnings for the 2022 financial year, the discharge of Board of Management and Supervisory Board members, the election of the auditor for the 2023 financial year, the election of members of the Supervisory Board, approval of the remuneration report, approval of the Board of Management remuneration system for the members of the Board of Management, approval of the remuneration for members of the Supervisory Board and the amendment to articles 16 and 17 of the Articles of Association
- Approval of the remuneration report for 2022 that was produced and checked in cooperation with the Board of Management in accordance with section 162 AktG
- Approval of the annual financial statements presented by the Board of Management and endorsement of the consolidated financial statements as of 31 December 2022
- Election of the Deputy Chairman of the Supervisory Board and appointment of new members of the committees of the Supervisory Board due to a change in the employee representatives on the Supervisory Board
- Replacement and reassignment of members on the committees of the Supervisory Board due to a member leaving the Supervisory Board
- Reappointment of Thomas Kusterer, Dirk Güsewell and Dr. Georg Stamatelopoulos as members of the Board of Management
- In-depth consultations and discussions with the Board of Management about the Group and portfolio strategy EnBW 2030
- In-depth consultations and discussions with the Board of Management about long-term strategic planning (with a focus on the energy industry, market, trading, gas, expansion of renewable energies, sustainability and climate change mitigation) and consultation on portfolio discussions of selected business fields of EnBW
- Approval for the sale of shares in an offshore wind farm
- Approval for the release of bank credit lines and increasing the counterparty limits for financial investments
- Regular reporting by the Board of Management on the development of market prices for electricity, fuels and CO_2
- Approval for the conclusion of a financial contract for the financing of an offshore wind farm
- Reporting on the SBTi certification
- Reporting on the status of the HR strategy
- Approval for optimizing existing LNG positions and the further expansion of LNG activities, as well as approval for the rental of additional LNG ships and conclusion of new LNG procurement contracts
- Approval for the conclusion of further contracts for the construction of broadband networks
- Approval for participation in the German offshore wind auction
- Approval for the investment decisions about new construction projects
- Approval for the sale of shares in TransnetBW
- Approval for the submission of a binding bid for participation in an offshore auction

- Consultation on the post-contractual non-competition agreement with Dr. Frank Mastiaux who stepped down as Chairman of the Board of Management on 30 September 2022
- Regular consultation on the development of the financial ratings of EnBW AG
- Revision of the Board of Management remuneration system
- Examining the appropriateness of the Board of Management and Supervisory Board remuneration
- Regular reporting by the Board of Management on the development of business activities in subsidiaries
- Regular consultation on the development of the markets relevant to EnBW
- Consultation on the self-assessment of the Supervisory Board
- Regular reporting by the Board of Management on the development of business activities in Turkey
- Regular reporting by the Board of Management on the operation, safety and, where relevant, dismantling of the nuclear power plants
- Consultation on the results of the EnBW Employee Survey 2022
- Approval of the financing strategy for 2024
- Approval for the issuing of the annual declaration of compliance and (Group) declaration of corporate management
- Approval of the budget for the 2024 financial year and acknowledgment of the medium-term planning for the period 2024 to 2026, consisting of the plans for Group earnings, finance, investment and HR, as well as for the result (HGB) and liquidity of EnBW AG; the corporate planning incorporates both financial and sustainability targets
- Approval for covering the financial needs of subsidiaries
- Approval for a budget supplement for an IT project
- Approval for the submission of binding bids for IT projects

Aside from the meetings, the Board of Management informed the Supervisory Board in writing about all business transactions of particular importance for the company or the Group. In addition, there was ongoing communication between the Chairman of the Supervisory Board and the Board of Management, particularly with the Chairman of the Board of Management, in order to discuss issues relating to strategy, planning, business development, the risk situation, risk management, compliance, the impact of the war between Russia and Ukraine, important individual transactions and currently pending decisions.

There was a consistently very high attendance rate at the individual meetings of the Supervisory Board. The majority of the members of the Supervisory Board attended all meetings of the Supervisory Board. No member of the Supervisory Board participated in less than half of the meetings.

Work of the committees

The committees set up by the Supervisory Board once again met regularly in the 2023 financial year, so that the Supervisory Board could perform its functions efficiently. The respective members of the committees are listed on p. 305↗ of the Integrated Annual Report 2023. The Chairpersons of the committees regularly reported in detail on the work of the committees at each subsequent plenary meeting of the Supervisory Board.

Corporate governance

The Supervisory Board also paid close attention to the various issues relating to corporate governance in the 2023 financial year and discussed the declaration of compliance in accordance with section 161 AktG. These topics are explained in detail in the declaration of corporate management (p. 161 ff.↗). The company also published the declaration of corporate management in accordance with section 289f (1) sentence 2 and section 315d sentence 2 HGB on its website.

The **declaration of corporate management** can also be found on our website as a separate document.

Corporate governance ↗

Audit of the annual and consolidated financial statements

Following a thorough examination by the audit committee, the Supervisory Board undertook a detailed review of the annual financial statements and consolidated financial statements as of 31 December 2023 that were audited and issued with an unqualified audit opinion by EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft, and of the combined management report including the non-financial declaration for the 2023 financial year. The final results of its own reviews did not lead to any reservations on behalf of the Supervisory Board. It approved the audit results of the independent auditor and endorsed the annual financial statements prepared by the Board of Management as of 31 December 2023 – which have thus been ratified – and the consolidated financial statements as of 31 December 2023, as well as the combined management report including the non-financial declaration for the 2023 financial year.

The full version of the **Report of the Supervisory Board** can be found here.

Corporate governance ↗

Reference to the complete version of the Report of the Supervisory Board

Further details on the topics “Work of the committees,” “Corporate governance,” “Audit of the annual and consolidated financial statements” and “Personnel changes at the level of the Supervisory Board and Board of Management” can be found in the full version of the Report of the Supervisory Board made available to the public on the company’s website.

Karlsruhe, 25 March 2024

The Supervisory Board

[redacted]

Chairman

The Board of Management

Colette Rückert-Hennen
- Born in 1961 in Leverkusen-Opladen
- Member of the Board of Management and Director of Personnel
- Chief Sales and Human Resources Officer since 1 March 2019
- Appointed until 28 February 2027

Curriculum vitae ↗

Dr. Georg Stamatelopoulos
- Born 1970 in Athens
- Chairman of the Board of Management
- Chief Executive Officer since 9 March 2024
- Chief Operating Officer Sustainable Generation Infrastructure (on an interim basis) since 1 June 2021
- Appointed until 31 May 2029

Curriculum vitae ↗

Thomas Kusterer
- Born 1968 in Pforzheim
- Deputy Chairman of the Board of Management
- Deputy Chief Executive Officer since 9 March 2024
- Chief Financial Officer since 1 April 2011
- Appointed until 31 March 2029

Curriculum vitae ↗

Dirk Güsewell
- Born 1970 in Radolfzell (Bodensee)
- Member of the Board of Management
- Chief Operating Officer System Critical Infrastructure since 1 June 2021
- Appointed until 31 May 2029

Curriculum vitae ↗

As of 09/03/2024

Combined management report

of the EnBW Group and EnBW AG

Fundamentals of the Group

Business report

Fundamentals of the Group

Business model

Business principles

Business model

Our vision – EnBW 2025 strategy: Sustainable and innovative infrastructure partner

Three segments with a focus on infrastructure

Input: Resources	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Output: Value added
Finance Relationships Employees and expertise Environment Infrastructure	• Sale of electricity and gas • E-mobility • Telecommunications • Home storage systems for solar electricity	• Transmission and distribution grids for electricity and gas • Water supply • Provision of grid-related services	• Generation and marketing of electricity from renewable energies and conventional power plants • Generation of district heating • Storage of gas • Trading of electricity and gas, CO_2 allowances and fuels	Finance Relationships Employees and expertise Environment Infrastructure

Our company is transforming itself from an energy supply company into a sustainable and innovative infrastructure partner, also outside of the energy sector. Sustainability is an important element of our business model and acts as a compass for our strategic alignment. We draw on a variety of resources – from finances through to infrastructure – for our corporate activities. As a result of the efficient use of these resources, we create value for ourselves and our stakeholders.

Our business portfolio is split into **three segments** that encompass the following activities:

- The **Smart Infrastructure for Customers** segment comprises the sale of electricity and gas, the provision and expansion of quick-charging infrastructure and digital solutions for electromobility, activities in the telecommunications sector and other household-related solutions such as photovoltaics and home storage systems.
- The transmission and distribution of electricity and gas are the main components of the **System Critical Infrastructure** segment. Our activities in this segment are designed to guarantee the security of supply and system stability. The provision of grid-related services and the supply of water are other activities in this segment.
- The **Sustainable Generation Infrastructure** segment encompasses our activities in the areas of renewable energies and conventional generation, district heating, waste management and energy services. In order to guarantee the security of supply, we maintain the power plants that have been transferred to the grid reserve. In addition, this segment includes the storage of gas and the trading of electricity, gas, CO_2 allowances and fuels, as well as the direct distribution of renewable energy power plants.

A main goal of our **EnBW 2025 strategy** is to develop a balanced and diversified business portfolio along the entire value-added chain via these three growth fields. Our portfolio is also characterized by a high proportion of stable, regulated business and an attractive risk-return profile. We have updated the 2025 strategy with an outlook to the period up to 2030. You can find more about the strategy in the chapter “Strategy, goals and performance management system” (p. 26 ff.↗).

The themes of **sustainability and climate protection** continue to be issues of intense public interest and will also influence social acceptance for our business activities to a greater extent in future. We have set ourselves the goal of continuing to develop our business model in line with the economic, ecological and social dimensions of sustainability. As an energy company, we can make a particularly effective contribution to climate protection. In the Group, we aspire to reduce our greenhouse gas emissions by 70% by 2030 in comparison to the reference year 2018 and become climate neutral with respect to our own emissions (Scope 1 and 2) (p. 30 ff.↗) by the end of 2035 at the latest.

We believe that **digitalization** does not only form an important basis for sustainable growth, profitability and competitiveness but is also fundamentally important for the success of the energy transition. Through our digitalization agenda 2030 and especially our emphasis on the application of data and artificial intelligence (AI and GenAI), we are intensifying our activities and developing other, Group-wide initiatives. Our focus lies on the digital evolution of our business activities, developing skills and supporting our sustainability activities (examples can be found on p. 40↗, 41↗, 50↗, 52 ff.↗, 64↗ and 87 ff.↗).

In order to achieve a necessary level of resilience, EnBW has introduced specific guidelines and methods for a systematic crisis, emergency and **business continuity management system (BCM).** The BCM exists in all relevant organizational units Group-wide with the aim of maintaining or restoring normal operational processes (examples can be found on p. 100↗, 101 f.↗, 93↗ and 135↗). It is tasked with developing and implementing measures to maintain value-added processes so that the company is able to respond in an optimal way to events that may cause operational shutdowns, emergencies or crises. Our subsidiary Netze BW had its BCM – implemented in the main areas of the company – audited in accordance with DIN ISO 22301 for the first time in 2023 and received its certification at the beginning of 2024.

Our company's **business model** has proved itself to be **robust and flexible** even in times of crisis. The reliable supply of electricity, gas, water and heating to our customers was not at risk at any time. Furthermore, reliable infrastructure has become an increasingly important issue in the social consciousness.

Our **portfolio** has also proved itself to be fundamentally **stable** in crisis situations. Our integrated approach thus enabled us to compensate for varying developments in different business fields in the 2023 financial year. Further information on the impact of the economic situation on our business activities can be found in the chapter "General conditions" (p. 58 ff.↗).

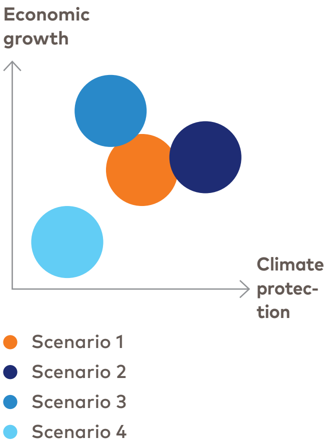
Assessment of the robustness of our business model against the background of climate change

We analyze the robustness of our business model now with an increasing focus on climate change due to the growing importance of climate-related risks and the recommendations issued by the Task Force on Climate-related Financial Disclosures (TCFD). Our strategic considerations take into account the requirements of the energy transition and the profound changes that will take place due to the transformation towards climate neutrality with the effects they will have on all business sectors and private households. We place particular focus on the expansion of renewable energies, electricity consumption, the expansion of the grids, grid stability and the security of supply. In this context, we examine the requirements with respect to climate protection, possible implementation paths and the implications for the EnBW business. Accordingly, a main component of our analyses of energy industry conditions is **evaluating the different ways in which the energy transition and the transformation to climate neutrality** could possibly develop. This acts as an important basis for assessing the opportunities and risks for our business (p. 135 f.↗) that will arise due to climate change and the dynamic regulatory environment associated with it.

In order to evaluate these opportunities and risks, we use real developments to derive **realistic future scenarios that take into account all of the different aspects of the energy transition.** These scenarios are primarily characterized by two dimensions. The **first dimension** is climate protection and encompasses our transformation to a climate-neutral company with its impact on all of the variables influencing the energy industry. It is thus of crucial importance for our business, as well as for the opportunities and risks along the entire value-added chain. The sustainable economic growth that is achievable in the long term is the **second dimension.** The level of growth that can be achieved in the long term will also have an impact on key variables such as the demand for electricity or commodity prices.

In the space defined by these dimensions, we describe **four scenarios that are particularly relevant to EnBW.** We fundamentally believe that we will achieve our goal of becoming a climate-neutral company. However, the speed at which this transformation can be implemented differs in the various scenarios. Two scenarios assume "normal" economic growth within the scope of so-called potential growth (scenarios 1 and 2). In scenario 2, the climate targets defined in the EU Green Deal will be largely achieved within the defined time span up to the middle of the century. In scenario 1, there will be a slight delay in achieving the goal of climate neutrality because it will not be possible to comprehensively solve the practical challenges associated with the implementation of the energy transition. In addition, we describe two other scenarios in which there is a long-term, permanent deviation in economic development that lies outside the scope of potential growth. In scenario 3, it is assumed that a higher priority will be assigned by society and politics to short and medium-term economic growth than to the quick implementation of a transformation towards climate change mitigation. Greater growth will thus be achieved during the period under consideration. In contrast, a period characterized by ongoing crises and weaker economic growth is assumed in scenario 4. In this scenario, the transformation to climate neutrality will be achieved at the slowest pace because the opportunities to secure the required investment in a timely manner will be significantly restricted.

Energy industry scenarios for EnBW



Within the scenarios, **variables** that have different characteristics depending on the scenario in question determine how the energy market develops. These include assumptions on the development of demand, the restructuring of the power plants as part of the phaseout of coal and the full decarbonization of electricity generation, the development of the transmission grids, and the prices and pricing structures for fuels. In addition, estimates about relevant market trends, such as in the area of renewable energies, electromobility or the development of a hydrogen market, play an important role. Based on the assumptions made for specific variables, possible paths for how the energy markets (especially electricity and gas) will develop in the long term are derived for the four scenarios. In the process, we predict the wholesale market prices for electricity in simulated calculations using computer models. These simulations also take into account physical risks, such as the influence meteorological fluctuations may have on the electricity market due to the availability of wind and sunlight, and thus make it possible to incorporate potential changes to the physical environment due to climate change into the calculations. The scenarios produced in this way can provide us with quantitative descriptions that serve as the basis for assessing our business and, in particular, also allow us to evaluate the opportunities and risks associated with climate change.

Value added

Value added for EnBW and its stakeholders

The aim of our corporate activities is to add value in the short, medium and long term. This reflects corporate success, as well as competitiveness and future viability, and does not only depend on the company itself but also on the business environment, relationships with stakeholders (p. 42 ff.↗) and the use of a variety of different resources. The efficient usage of these resources creates value for ourselves and our stakeholders. We associate the concept of sustainable economic development with our aspiration to conduct all of our business activities in a responsible way.

Value added 2023 for EnBW and its stakeholders

Input: Resources

Finance	Relationships	Employees and expertise	Environment	Infrastructure
Solid financial structure	Focus on stakeholders	People as the main focus	Use of natural resources	Sustainable infrastructure partner
Non-current assets €36.6 billion	Procurement volume of around €6.3 billion	Employees at the Group: 28,630	Total investment / of which in renewable energies (RE) €4,902.6 million / €1,174.2 million	Grid lengths Electricity 148,000 km Gas 31,000 km
Equity €15.9 billion	Proportion of suppliers using the EnBW Supplier Code of Conduct, measured by procurement volume: 97 %	Proportion of women in management positions at EnBW AG in the first and second levels below the Board of Management 15.4% / 24.7%	Total final energy consumption / of which RE 1,146 GWh / 20.6%	Installed output / of which RE 12,226 MW / 46.9%

Business model

Smart Infrastructure for Customers

System Critical Infrastructure

Sustainable Generation Infrastructure

Output: Value added

Finance	Relationships	Employees and expertise	Environment	Infrastructure
TOP Adjusted EBITDA €6.4 billion	TOP Customer Satisfaction Index 130 / 161	TOP People Engagement Index 82	TOP Installed output of RE and share accounted for by RE Generation capacity 5.7 GW / 46.9%	TOP SAIDI Electricity 19.3 min. / a
TOP Debt repayment potential 41.3%	TOP Reputation Index 55	TOP LTIF for companies controlled by the Group / overall 2.4 / 3.7	TOP CO_2 intensity 347 g / kWh	Transmission volumes [1] Electricity 55,800 GWh Gas 29,100 GWh
TOP Value spread 10.2%				Own generation / of which RE 26,552 GWh / 47.8%

Outcome: Contribution to sustainability

Economy

- Securing **profitability,** managing the **financial profile** and increasing **Group value**
- Developing **sustainable, innovative services**
- Integrating sustainability criteria into the **investment approval process**

Ecology

- Expansion of **renewable energies, grids and charging infrastructure**
- Gradual **phaseout of coal planned by 2028**
- **Climate neutral** with respect to Scopes 1 and 2 by 2035
- Certification of Paris-compliant climate protection targets in all Scopes (1 – 3) by the **Science Based Targets initiative (SBTi)**
- Transformation of the natural gas business towards **climate-neutral gases** (biogas, hydrogen)

Society and social

- Guaranteeing the **security of supply**
- **Sustainable purchasing** and **responsible raw materials procurement**
- **People as the main focus** – diversity, qualifications, leadership and skills
- Assuming our **social responsibility**

Contribution made by EnBW to the Sustainable Development Goals (SDGs)

7 AFFORDABLE AND CLEAN ENERGY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

11 SUSTAINABLE CITIES AND COMMUNITIES

13 CLIMATE ACTION

1 In the System Critical Infrastructure segment.

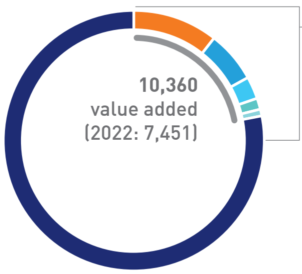
We present how EnBW adds value and how we use our resources to this end by means of our key performance indicators (p. 32 ff.↗) and other selected performance indicators. With respect to the resource **finances,** it is critically important that we maintain a solid financial structure at all times so that we can finance our business activities. Sustainable financing instruments are playing an increasingly important role in this area (p. 32↗). The value we generate for ourselves and our main stakeholders is presented in our value-added statement (p. 21↗). An important factor for the resource **relationships** is building customer loyalty to strengthen trust in EnBW as a partner and supplier. Active dialog with stakeholders builds trust and social acceptance (p. 42 ff.↗). We generate added value in this area by engaging in social issues relevant to our various target groups. Always having the right **employees** with the right **expertise** in the right place is a key focus of the HR policy. Expertise, experience and diversity contribute to the success of the company (p. 101 ff.↗). We also engage in a range of research and development activities to identify market opportunities and trends and develop innovative products (p. 47 ff.↗). We create room for personal development, offer apprenticeships and courses for students, run a multistage career integration program for refugees and migrants and are active in the area of diversity (p. 102 f.↗). With respect to the **environment,** we generate energy using the natural resources wind, water, sun, biomass and geothermal energy. We generate value in this area by improving our carbon footprint, expanding our renewable energy power plants and connecting them to the grid, developing energy-efficient products and ensuring that we engage in sustainable and responsible procurement (p. 93 ff.↗). Our resources related to **infrastructure** comprise the expansion and operation of power plants, grids and gas storage facilities. Furthermore, we are continuing to expand our quick-charging infrastructure and the telecommunications and broadband business (p. 91 ff.↗). EnBW mainly generates value here by pushing forward the energy and mobility transition.

Value-added statement

The value-added statement indicates the degree to which we contribute to the continuing economic development of the company and our stakeholders using our financial resources. Further information on the dialog with our stakeholders is summarized in the chapter "In dialog with our stakeholders" (p. 42 ff.↗).

Value added of the EnBW Group [1]

Output: value
in € million



36,919 suppliers and service providers: material and other operational expenditure [2] (2022: 53,698)

47,279 cash-relevant business performance (2022: 61,149)

Use of value added

	2023	2022
EnBW Group: retained cash flow	47%	43%
Active and former employees: primarily wages and salaries	29%	36%
State: taxes	13%	10%
Shareholders: dividends	6%	7%
Outside investors: interest	4%	4%

1 The figures for the previous year have been restated.
2 Includes interest and dividends received, as well as the dedicated financial assets contribution.

We define value added as our cash-relevant business performance in the past financial year less cash-relevant expenses (suppliers and service providers). The value added is derived from the cash flow statement and corrected based on the use of funds. In the reporting year, we generated value added of 21.9% (previous year restated: 12.2%). Despite the decrease in cash-relevant business performance, value added was higher than in the previous year because the fall in cash-relevant cost of materials was greater. As well as being used in the form of wages, salaries and pension payments for active and former employees, a further share is dedicated to payments to the state in the form of income taxes and electricity and energy taxes. After consideration of other stakeholder groups, the retained cash flow is available to the company for future investments without the need to raise additional debt (p. 82↗).

Our operating segments

We identified the material events of the 2023 financial year by using the materiality analysis process that we describe in detail on p. 43↗. These are shown in the following diagram allocated to our three segments.

Overview of the segments

Smart Infrastructure for Customers

Significant events in 2023

- E-mobility growth strategy continues with EnBW mobility+ reaching the milestone of 1,000 quick-charging stations nationwide and providing access to more than 500,000 charging points in the EnBW HyperNetwork (p. 89 f.↗)
- New cooperations for the expansion of charging infrastructure at retail properties (p. 89 f.↗)
- Resolute ongoing expansion of the fiber-optic network (p. 91↗)

System Critical Infrastructure

Significant events in 2023

- Sale of two 24.95% shareholdings in the transmission grid operator TransnetBW to each of Südwest Konsortium and KfW (p. 26↗)
- Start of construction of SuedLink (converter and subproject for the excavation work) and ULTRANET (line construction) (p. 64↗)
- Implementation of a comprehensive expansion and renewal program for the distribution grids at Netze BW (p. 92↗)
- Progress with the south German natural gas pipeline (SEL) project (p. 65↗)
- Participation in the development of a core hydrogen network on behalf of the German government (p. 64↗)

Sustainable Generation Infrastructure

Significant events in 2023

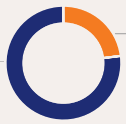
- Investment decision for the He Dreiht offshore wind farm; sale of minority shareholding to a consortium (p. 27↗)
- Conclusion of multiple power purchase agreements for the He Dreiht wind farm (p. 27↗)
- Purchase of further delivery capacities for liquefied natural gas (LNG) in Stade (p. 56↗)
- Decommissioning of the nuclear power plant GKN II, receipt of the final dismantling approvals, all nuclear power plants currently being dismantled (p. 68↗)
- Start of construction on the three fuel switch projects in Stuttgart-Münster, Altbach/Deizisau and Heilbronn at the beginning of 2024 (p. 27↗)

Important cross-segment events in 2023
Acceleration of the coal phaseout plan and certification of EnBW's reduction targets by the Science Based Targets initiative (SBTi) to confirm they are line with the Paris Agreement (p. 30 ff.↗)

Smart Infrastructure for Customers

Sales in 2023

114,500 GWh Gas (B2C/B2B)



34,200 GWh Electricity (B2C/B2B)

Number of customers in 2023

B2C and B2B	5.5 million

Development of adjusted EBITDA
in € billion

0.2	0.6	0.7 – 1.0
2023	Target for 2025	Target for 2030

Key figures in 2023

Employees (as of 31/12/2023)	5,711
Investment	€383.0 million
Adjusted EBITDA	€239.5 million
Share of adjusted EBITDA[2]	3.8%

System Critical Infrastructure

Grid lengths in 2023

148,000 km
Electricity transmission and distribution grid

31,000 km
Gas transmission and distribution grid

Transmission volumes in 2023

Electricity	55,800 GWh
Gas	29,100 GWh

Development of adjusted EBITDA
in € billion

1.8	1.3	2.3 – 2.6
2023	Target for 2025	Target for 2030

Key figures in 2023

Employees (as of 31/12/2023)	11,635
Investment	€2,671.9 million
Adjusted EBITDA	€1,772.0 million
Share of adjusted EBITDA[2]	27.8%

Sustainable Generation Infrastructure

Installed output in 2023

47% share accounted for by renewable energies

Generation portfolio in 2023[1]

Electricity generation	26,500 GWh
Installed output	12,208 MW

Development of adjusted EBITDA
in € billion

4.6	1.3	2.7 – 3.0
2023	Target for 2025	Target for 2030

Key figures in 2023

Employees (as of 31/12/2023)	7,563
Investment	€1,783.5 million
Adjusted EBITDA	€4,647.6 million
Share of adjusted EBITDA[2]	73.0%

1 The values stated for electricity generation and installed output are not identical to the totals for the EnBW Group. Several power plants are allocated to the other two segments. The total generation of the EnBW Group is 26,552 GWh (excluding positive redispatch volumes), of which 12,680 GWh is generated from renewable energy sources. The total installed output of the EnBW Group is 12,226 MW, of which 5,728 MW is from renewable energy power plants. The totals for generation and installed output for the Group are shown in detail on p. 94↗.
2 The sum of the three segments does not correspond to the adjusted EBITDA for the EnBW Group. €-293.9 million (-4.6%) is attributable to Other/Consolidation in the 2023 financial year (p. 71 f.).

Group structure and business radius

EnBW is organized according to the model of an integrated company. EnBW AG is managed through business units and functional units: Core operating activities along the entire energy industry value chain are concentrated in the business units. The functional units carry out Group-wide support and governance tasks. The EnBW Group consists of EnBW AG as the parent company and 256 fully consolidated companies, 25 companies accounted for using the equity method and 3 joint operations. Further information on the organizational structure can be found in the chapter "Corporate governance" under "Management and supervision" on p. 37 ff.↗.

Baden-Württemberg, Germany and Europe

Further information on **selected companies of EnBW AG** can be found under the following link.

Online ↗

Selected EnBW companies

Baden-Württemberg
EnBW Energie Baden-Württemberg AG, Karlsruhe
EnBW mobility+ AG & Co. KG, Karlsruhe
EnBW Ostwürttemberg DonauRies AG, Ellwangen
Erdgas Südwest GmbH, Karlsruhe
NetCom BW GmbH, Ellwangen
Netze BW GmbH, Stuttgart
terranets bw GmbH, Stuttgart
TransnetBW GmbH, Stuttgart
ZEAG Energie AG, Heilbronn

Germany
ONTRAS Gastransport GmbH, Leipzig
Plusnet GmbH, Cologne
SENEC GmbH, Leipzig
Stadtwerke Düsseldorf AG, Düsseldorf
VNG AG, Leipzig
Yello Strom GmbH, Cologne

Denmark
Connected Wind Services A/S, Balle

France
Valeco SAS, Montpellier

Great Britain
Mona Offshore Wind Holdings Limited, Sunbury-on-Thames[1]

Morgan Offshore Wind Holdings Limited, Sunbury-on-Thames[1]

Morven Offshore Wind Holdings Limited, Sunbury-on-Thames[1]

Austria
SMATRICS EnBW GmbH, Vienna

Sweden
EnBW Sverige AB, Falkenberg

Switzerland
Energiedienst Holding AG, Laufenburg

Czech Republic
Pražská energetika a.s., Prague

Turkey
Borusan EnBW Enerji yatırımları ve Üretim A.S., Istanbul[1]

1 Not fully consolidated, accounted for using the equity method.

The full list of shareholdings can be found in the notes to the consolidated financial statements under (38) "Additional disclosures."

Our **roots lie in Baden-Württemberg,** where we are positioned as a market leader. We rely here on EnBW AG, Netze BW and a series of other important subsidiaries.

We also operate throughout the rest of **Germany** and in **selected markets abroad** via our various subsidiaries. We are pushing forward the **expansion of renewable energies** through Valeco, the French project developer and operator of wind farms and solar parks. We are represented by our subsidiaries Connected Wind Services (CWS) in Denmark and EnBW Sverige in Sweden. In Turkey, we work together in the renewable energies sector with our partner Borusan. In Great Britain, we have secured the rights to build several offshore wind farms together with our partner bp. The companies Energiedienst (ED) in Switzerland and Pražská energetika (PRE) in the Czech Republic, in both of which EnBW has held participating interests for many years, also have a strong focus on renewable energies.

We are actively engaged in **the operation of the charging infrastructure and provide a range of products and services necessary for electromobility** in many European countries through our subsidiary EnBW mobility+. We are the market leader for quick charging in Germany and are now also expanding onto the Austrian market with SMATRICS EnBW. Our subsidiary SENEC, based in Leipzig, offers holistic energy solutions for customers to meet their own energy needs using solar electricity and home storage. The telecommunications company Plusnet based in Cologne supplements our portfolio in our nationwide **broadband business,** while our subsidiary NetCom BW has its main focus in this sector in Baden-Württemberg.

Click on the respective logos to access the websites of our **most important subsidiaries.**

Our **most important participating interests** in relation to the value-added chain include the following groups of companies:

EnergieDienst

Energiedienst (ED), based in Laufenberg, Switzerland, has around 1,200 employees and is an ecologically oriented German-Swiss listed company with various subsidiaries that is active in South Baden and Switzerland. ED exclusively generates green electricity using primarily hydropower and has already been measuring and regulating its Scope 1, Scope 2 and parts of its Scope 3 emissions since 2020 to ensure they remain climate neutral. Alongside the production, sale and supply of electricity, this group of companies offers its customers smart, networked products and services, including photovoltaic plants, heat pumps, electricity storage systems, electromobility and e-car sharing.

PRE

Pražská energetika (PRE), based in Prague, Czech Republic, has around 1,800 employees and its core business activities include the sale of electricity and gas, the distribution of electricity in Prague and Roztoky, the generation of electricity from renewable energies, the operation and expansion of fiber-optic infrastructure, the expansion of the charging infrastructure for electromobility and the provision of energy services. PRE is the third-largest electricity supplier in the Czech Republic. As part of its activities, PRE promotes the use of modern technological solutions and advises on the implementation of innovative technologies and achieving energy savings.

Stadtwerke Düsseldorf

Stadtwerke Düsseldorf (SWD) is one of the largest municipal energy supply companies in Germany. It has around 3,300 employees and SWD and the companies in which it holds a majority shareholding supply customers in Düsseldorf and the surrounding region with electricity, natural gas, district heating and drinking water, as well as being responsible for waste disposal and street cleaning services in the metropolitan area of Düsseldorf. In addition, the company's focus is placed on the needs-based development of networked urban infrastructures in the areas of energy, mobility, the circular economy and real estate. SWD is supporting the state capital of North-Rhine Westphalia to achieve its target of becoming climate neutral with respect to Scope 1 and 2 emissions by 2035.

VNG

VNG and its subsidiaries as gas importers, wholesalers and operators of critical gas infrastructure ensure Germany is reliably supplied with gas. This group of over 20 companies is active across Europe and employs about 1,600 people. It has its headquarters in Leipzig and concentrates on the business areas of Trading and Sales, Transport, Storage, Biogas and Digital Infrastructure. VNG is also pursuing an ambitious path for a market ramp-up of renewable and decarbonized gases such as biogas and hydrogen, paving the way for a sustainable, secure supply and, in the long term, the climate-neutral energy system of the future.

Customers and sales brands

We supply **around 5.5 million customers** with energy and differentiate between two customer groups: The B2C customer group includes retail customers, small commercial enterprises, the housing industry and agriculture. The B2B customer group encompasses major commercial enterprises and industrial companies, as well as redistributors, municipal utilities, local authorities and public entities.

We use our sales brands to orient ourselves to the needs of our customers. In the B2C sector, we sell green electricity, electricity, gas, district heating, energy industry services, energy solutions and drinking water under the **EnBW brand.** These products and services focus on Baden-Württemberg. We sell green electricity and gas products, as well as solutions and digital services related to energy, to retail and commercial customers throughout Germany through the **Yello brand.**

We are also represented in the B2C and B2B sectors via our subsidiaries through the **Erdgas Südwest, ODR** and **ZEAG brands.**

Under the **naturenergie brand,** Energiedienst (ED) sells green electricity across Germany and gas to retail customers in South Baden via a subsidiary. In addition, ED also offers many other sustainable products and services through this brand in the areas of heating, living, photovoltaics and mobility – from solar power plants and e-car sharing services through to heating concepts for districts. In Switzerland, the ED Group provides electricity to business customers. PRE sells electricity, gas and energy services to retail and commercial customers in Prague and the surrounding region under the **PRE brand.** PRE also supplies electricity, gas and energy services to industrial customers across the Czech Republic under the PRE brand. Electricity and gas are sold in the Czech Republic under the **Yello brand,** primarily via online channels to households and commercial customers. SWD supplies retail and commercial customers in the B2C sector and business and industrial customers in the B2B sector with electricity, gas, heating, energy solutions and drinking water under the **Stadtwerke Düsseldorf brand.** The sales focus is placed here on Düsseldorf and the local region. Under the **VNG brand,** VNG supplies around 400 public utilities and redistributors as well as large industrial customers with gas via a subsidiary and its investments at home and abroad. Under the **goldgas brand,** VNG also sells gas and electricity to private households and commercial customers in Germany and Austria via its subsidiary of the same name.

Strategy, goals and performance management system

Strategy

Sustainable and innovative infrastructure partner

Our **EnBW 2025 strategy** has the motto “Making and shaping the infrastructure world of tomorrow” and is based on a holistic approach to stakeholders. It defines specific financial and non-financial targets in the dimensions of finance, strategy, customers and society, environment and employees. We have made sustainability an integral part of our corporate strategy because we want to ensure that we create economic, ecological and social added value for our stakeholders.

Our EnBW 2025 strategy increasingly places the company’s focus onto the infrastructure aspects of existing energy-related business fields and other activities that are aligned with our core expertise. Our core expertise – what we do well and do better than many others – lies in the safe and reliable construction, operation and management of critical infrastructure in the energy sector, such as the generation of power and heat or the distribution of energy by our grid subsidiaries. This can also be transferred to other **business fields related to infrastructure.** One example of this type of business field is our broadband business in which we have made major progress by winning various large contracts. We are also involved in the expansion of urban infrastructure, for example the smart networking of energy and heating supplies, telecommunications and e-mobility.

Our strategy and its integrated approach along the value-added chain has demonstrated its resilience in times of crisis. The war between Russia and Ukraine, high volatility on the markets and the possibility of regulatory interventions on the market increase the level of uncertainty with which predictions about the future development can be made. Therefore, we continuously monitor and evaluate conditions with respect to their possible impact on our business. We remain committed to our overarching strategic alignment as an integrated energy and infrastructure provider, even more so because of our **robustness in times of crisis** (p. 17 f.↗).

We are following these **strategic goals** in our three segments:

Our **Smart Infrastructure for Customers** segment encompasses our end-customer business. In the next few years, we will especially focus on the growth area of electromobility. We aim to further expand our quick-charging infrastructure to around 30,000 quick-charging points by 2030 in order to promote electromobility, maintaining our position as the market leader in this sector in the process (p. 89 f.↗). And in the area of B2C sales for electricity and gas, we will continue to rely on digitalization to deliver an improved customer experience and increase our cost efficiency. We are also expanding our household-related energy solution business (such as in the area of photovoltaics and storage systems).

In the **System Critical Infrastructure** segment, our grid subsidiaries for electricity and gas will further expand the transmission grids as they form an important cornerstone of our earnings alongside the distribution grids. At our subsidiary TransnetBW, we sold two minority shareholdings of 24.95% each to the Südwest consortium headed by SparkassenVersicherung and to the KfW. In addition, our grid companies will upgrade the electricity distribution grids so that they are ready to meet the challenges of the future and ensure they are prepared for the additional demands that will be placed on them by electromobility, the increasing number of heat pumps and the decentralized feed-in of energy. Numerous local authorities have invested in our distribution grids via the “EnBW connects” participation model (p. 90↗). To support the decarbonization of the gas sector, our grid companies are preparing their grid infrastructure for the use of climate-friendly and climate-neutral gases in the future, such as hydrogen.

In the **Sustainable Generation Infrastructure segment,** the main focus is the expansion of renewable energies and disposable capacity, i.e., flexibly deployable power plants. The expansion of renewable energies will cover further selective internationalization and the realization of projects without state funding. The generation capacity of our wind power plants is due to increase to 4.0 GW by 2025 and our portfolio of photovoltaic projects to 1.2 GW. In addition, EnBW and bp plan to build three offshore wind farms through joint ventures that will have a total capacity of 5.9 GW and lie off the coast of Great Britain. They will be placed into operation from 2029. Long-term power purchase agreements (PPAs) with industrial customers will be used to safeguard this investment. With respect to coal-based conventional generation, we plan to phase out coal by 2028 based on the assumption that renewable energies will be ramped up as necessary and that the significant progress in expanding the grids in accordance with the plans announced by the German government can be achieved. As a replacement for several of our coal power plants and to secure our portfolio of renewable energies, we already decided in 2022 to construct gas power plants (fuel switch) that could also be operated using hydrogen in the future (H_2-ready). The operation of Block II of our Neckarwestheim nuclear power plant ended as planned on 15 April 2023 in accordance with the amended German Atomic Power Act. We are adapting our trading activities to the changes in our generation portfolio and the energy markets and further expanding our market position with a focus on Europe.

We had planned to use this portfolio to increase our **adjusted EBITDA** to €3.2 billion by 2025 in accordance with our EnBW 2025 strategy. It was possible to exceed this target in the 2023 financial year and in our current plans we now also expect to exceed this earnings target (p. 125↗).

We had also originally planned **net investment** of around €12 billion in total between 2021 and 2025 as part of our EnBW 2025 strategy, of which 80% was intended for growth projects. We are now expecting that our net investment will be higher due to, among other things, a faster energy transition and the rise in inflation (p. 124 f.↗). There was investment of €8 billion between 2021 and 2023. The main focus of our investment will be the expansion of the grids, especially the SuedLink and ULTRANET projects of our grid subsidiary TransnetBW that are central to the future energy supply in Germany, the expansion of renewable energies, such as the planned realization of the EnBW He Dreiht offshore wind farm, the construction of H_2-ready gas power plants in Altbach/Deizisau, Stuttgart-Münster and Heilbronn, and further developments in the Smart Infrastructure for Customers segment, such as the further expansion of electromobility. We resolutely apply sustainability criteria when taking investment decisions (p. 36↗) and align our growth accordingly (p. 80 f.↗).

Outlook 2030

EnBW has updated the 2025 strategy with an outlook to the period up to 2030. Based on our integrated approach, we will rigorously push forward the expansion of the energy infrastructure. Our main focus will be placed on the accelerated expansion of renewable energies and the grid infrastructure, as well as the development of smart products and services for our customers that support the energy transition at home and on the move.

In the period from 2024 up to and including 2030, we are planning gross investment totaling around €40 billion. Approximately 60% of this investment will be in the expansion of the grids in the System Critical Infrastructure segment and approximately 30% will be on the expansion of wind farms and solar parks and the construction of climate-friendly, hydrogen-ready power plants in the Sustainable Generation Infrastructure segment. The remaining amount of around 10% will primarily flow into the expansion of electromobility in the Smart Infrastructure for Customers segment. The vast majority of the investment will be made in Germany, while about 10% will be in our other markets. EnBW will further accelerate the pace of the energy transition with its planned investment up to 2030. At the same time, our aim is to comply with the strict sustainability criteria in the EU taxonomy in more than 85% of the investment. We want to continue implementing the projects associated with this investment in cooperation with partners. Taking into account these partnerships, we expect total net investment of around €22 billion by 2030. We have already been able to secure almost half of the expected cash returns, especially via the participation model for our He Dreiht offshore wind farm and the investments made by financing partners in the transmission grid operator TransnetBW. We will largely finance our net investment from retained cash flow until 2030 and otherwise will mainly rely on green financing instruments. At the same time, we will always strive to maintain a solid investment-grade rating based on a debt repayment potential of at least 15%.

In terms of adjusted EBTDA, we expect to increase earnings to between €5.5 and €6.3 billion by 2030, of which between €0.7 and €1.0 billion will be accounted for by the Smart Infrastructure for Customers segment, between €2.3 and €2.6 billion by the System Critical Infrastructure segment and between €2.7 and €3.0 billion by the Sustainable Generation Infrastructure segment. With our balanced portfolio across these three segments and a proportion of low-risk adjusted EBITDA of at least 70%, we want to continue to play a leading role in reshaping the energy sector in Germany.

EnBW Sustainability Agenda

More detailed information on the **Sustainability Agenda** can be found on our website.

Online ↗

Sustainability is closely linked to the core business at EnBW and has thus been consistently taken into account in the development of the company for many years. Our long-term business success is oriented towards achieving economic, ecological and social goals. In 2022, we began the **implementation of the EnBW Sustainability Agenda** and continued to implement it in 2023. We developed it in a multistage process that incorporated our stakeholder groups and took our corporate values into consideration. The 15 measures developed as part of the EnBW Sustainability Agenda have made an important contribution to the corporate success of EnBW over the last two years and are helping to anchor sustainability even more strongly into our activities and solutions. As a consequence, they make a noticeable contribution to value added and minimize the risks facing our company. Four strategic focus areas covering all of the ESG dimensions provide a framework for the 15 measures.

Strategic themes and measures for the EnBW Sustainability Agenda

New energy and climate neutrality

1. Expansion of renewable energies and taking biodiversity criteria into account in major projects
2. Climate-neutrality road map and socially responsible phaseout of coal
3. Further development towards becoming a system partner for hydrogen provision and infrastructure

Infrastructure transition

4. Eco-efficient quick-charging parks and climate-neutral corporate mobility
5. Strengthening the grid infrastructure for the energy and mobility transitions
6. Sustainable districts and real estate
7. Promoting forms of working and mobility that are ready for the future by laying new fiber-optic cables in rural areas

Culture of sustainability

8. Board of Management and management remuneration aligned to sustainability criteria
9. Expanding the area of sustainable finance, financing via green bonds
10. Holistic consideration of sustainability in the investment process
11. Expanding the evaluation of risks and opportunities to include climate risks
12. Expanding the sustainable HR strategy

Protecting the natural environment

13. Anchoring sustainability criteria in the purchasing process
14. Increasing the use of low carbon materials and the efficient use of resources, reducing harmful emissions and water consumption
15. Protecting employees and local residents

We made important progress with all of the measures in the 2023 financial year. Here are some **selected examples:**

New energy and climate neutrality: EnBW is transforming energy and heating generation to shape the path towards climate neutrality. Following the endorsement of our climate protection targets by the renowned Science Based Targets initiative (SBTi), the Board of Management and Supervisory Board have now approved precisely defined, science-based reduction paths for all Scopes (1 to 3). The key to reducing emissions will be the planned phaseout of coal by 2028. Another important milestone will be the planned fuel switch projects for generating electricity and heating using more climate-friendly gases at the sites in Baden-Württemberg from 2026 onwards **(measure 2)** (p. 30 ff.↗). As part of **measure 3,** we aim to make EnBW a pioneer in all market segments related to climate-neutral gases. EnBW, including its subsidiaries such as Netze BW and VNG, is engaged in several hydrogen projects along the entire value-added chain. We are concentrating here on developing a product range certified according to EU standards.

Infrastructure transition: As the market leader in the expansion of the charging infrastructure for electromobility, EnBW is committed to creating a sustainable customer experience. This begins with using 100% green electricity in the operation of our charging stations. As part of the EnBW Sustainability Agenda, we have been investigating how we can design more sustainable charging parks. We carried out a life cycle analysis of a pilot project at the "Next Level" charging park in Chemnitz to test which elements can be transferred to charging park planning **(measure 4).** The charging park was presented at IAA MOBILITY in Munich and not only serves the purpose of reducing CO_2 emissions but is also designed to meet the needs of drivers of electric vehicles, with a special focus on aspects

Netze BW won the **German Sustainability Award** in the grid infrastructure category.

Online ↗

such as creating a family-friendly and barrier-free experience. The two EnBW subsidiaries EnBW mobility+ and Netze BW both won the German Sustainability Award 2024 at the end of 2023. Explaining its decision, the jury recognized EnBW mobility+ as a pioneer in the construction and operation of quick-charging infrastructure for electric cars and a trailblazer in the mobility transition. As part of **measure 5**, Netze BW is addressing the challenges posed by the decentralization of electricity and heating generation and the ramping up of electromobility using technical solutions. For this purpose, the largest distribution grid operator in Baden-Württemberg has introduced more than 150 measures focusing on the environment, energy transition, people, climate and society. **Measure 6** addresses both EnBW's own real estate and the development of sustainable districts for third parties. It is laying the foundations for a climate-neutral real estate portfolio by 2035. To this end, we have implemented the first steps of the agreed road map that lays out the measures required to reduce CO_2 emissions.

Culture of sustainability: Measure 9 is designed to strengthen the area of sustainable finance. Two green senior bonds with volumes of €650 million and €850 million, respectively, (p. 32↗) have been issued as part of measure 9, each on the basis of taxonomy-aligned activities. EnBW is actively engaged in promoting sustainable finance across all sectors. For example, we are a member of corporate networks such as econsense, the sustainability network of German business, and represented in expert groups such as the Accounting Standards Committee of Germany and the Sustainable Finance Advisory Committee of the German Federal Government. In a project to implement the requirements in the Corporate Sustainability Reporting Directive (CSRD) and European Sustainability Reporting Standards (ESRS), we are working to adapt our sustainability reporting in good time for the 2024 reporting year. As part of **measure 10,** we extended the investment approval process to cover other business categories, while almost doubling the number of assessments we carried out in 2023. An evaluation of the CO_2 emissions and thus the impact on the climate of a new project has also been made a standard part of the process. In order to strengthen the resilience of the business model and against the background of growing physical risks, a new IT system has been introduced at the Group as part of **measure 11** that will allow us to carry out climate risk analyses at the sites in the Group for the EU taxonomy. Based on the future scenarios RCP2.6, RCP4.5 and RCP8.5 developed by the Intergovernmental Panel on Climate Change (IPCC), we are carrying out climate risk analyses of existing and future EnBW sites to assess the impact of possible extreme weather events. The analyses will allow the specialist departments and business areas to test and implement suitable mitigation and adaptation measures at an early stage.

Protecting the natural environment: EnBW laid the foundations for exercising due diligence with respect to human rights in compliance with the legal requirements with the ratification of the Declaration on Human Rights in spring 2023 and the first EnBW policy statement in accordance with the Act on Corporate Due Diligence Obligations in Supply Chains (Lieferkettensorgfaltspflichtengesetz, LkSG) as part of **measure 13.** This includes robust control and implementation structures, as well as comprehensive risk analyses of our own business areas and throughout the supply chain. In addition, we have automated and digitalized the business partner audit for the purchasing of raw materials and this has enabled us to carry out comprehensive due diligence checks on business partners even more efficiently and effectively since fall 2023 (p. 52 ff.↗). We carried out a status quo analysis with the aim of increasing our resource efficiency and strengthening the circular economy, by recording and analyzing the measures that had been carried out up to now across the Group. Using this as a basis, we identified key areas of focus for pilot projects and potential areas for adding value. In this context, we are investigating, for example, whether used electric car batteries can be recycled in the construction of new electricity storage systems. As part of **measure 15,** we have examined the Group-wide implementation of an occupational safety management system (ISO 45001) and held workshops to inform individual business areas and companies in which we have a participating interest about the system. The aim, in particular, is to promote expertise in the area of occupational safety at those companies in which we have a participating interest and which have a high risk potential. Our own occupational medicine department has continued to offer a variety of services to employees to help them improve their physical and mental health since the end of the coronavirus pandemic (p. 102↗).

The EnBW Sustainability Agenda is supported by a **governance structure** that continuously monitors the implementation of the agenda using performance indicators. The individual measures can be adjusted if necessary. The results of the Sustainability Agenda have been analyzed and will serve as the basis for the updated Sustainability Agenda 2.0 in 2024.

Our climate protection goals

Learn more about our **Sustainability Agenda** here.

Online ↗

Two key elements of the **EnBW Sustainability Agenda** are compliance with science-based targets and the achievement of our goal of climate neutrality. Our goals for reducing greenhouse gas emissions along the value-added chain are aligned with these aims.

Science Based Targets initiative (SBTi)

Further information on the **SBTi** can be found on our website.

Online ↗

The **Science Based Targets initiative (SBTi)** helps companies to develop their own **science-based climate protection targets.** In October 2021, EnBW announced its intention to set science-based targets according to the SBTi. We concluded this process as planned in spring 2023. We have thus aligned our climate protection targets with the targets of the Paris Agreement. The reduction targets cover the entire value-added chain for EnBW and are split into three emission categories or so-called Scopes: Scopes 1 and 2 include, in particular, the greenhouse gas emissions produced by our power plants as they generate electricity and heat, and when energy is distributed in the grids operated by our subsidiaries. Our Scope 3 emissions are mainly influenced by the gas consumption of our customers (p. 95 ff.↗). We aim to follow a 1.5 degree-aligned path for Scopes 1 and 2 emissions and a "well below 2 degrees"-aligned path for Scope 3 emissions. We also aim to reduce our CO_2 emissions in Scopes 1 and 2 by 83% by 2035 (based on the reference year 2018). In the same period, we aim to reduce our emissions from gas sales in Scope 3 by 43% in comparison to the reference year 2018. These targets have been certified by the SBTi. We will offset any residual Scope 1 and 2 emissions in the period after 2035 on a transitional basis by purchasing CO_2 certificates and thus by supporting recognized climate change mitigation projects until the emissions have been completely reduced to zero. Along this path we have also defined various intermediate targets and milestones: We will reduce our Scope 1 and 2 emissions by 50% by 2027 and by 70% by 2030 (based on the reference year of 2018).

As an integrated energy company with its own generation portfolio – which is increasingly characterized by renewable energies – we can make an important contribution to decarbonization and thus to safeguarding the livelihoods of future generations.

Measures

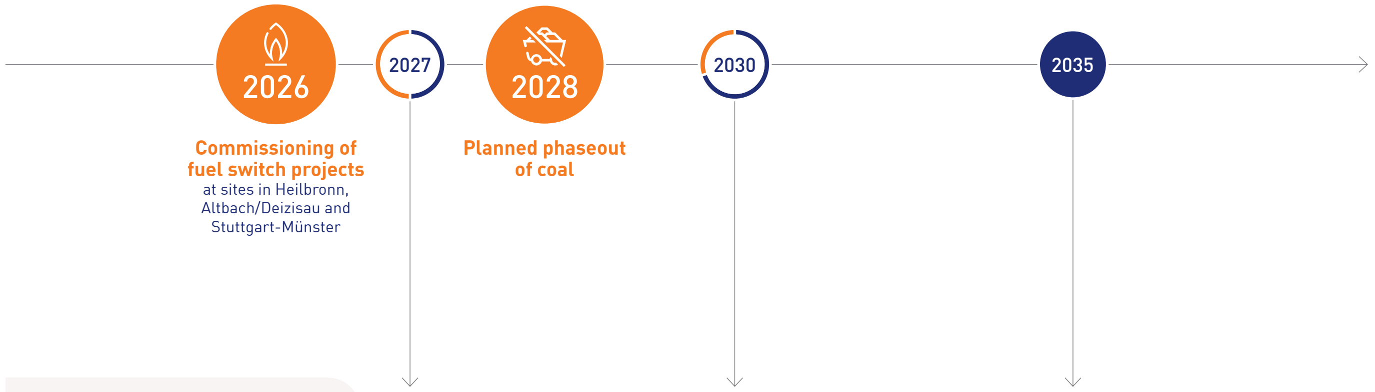
Further information on our **climate protection targets** can be found here.

Online ↗

Our climate protection targets **are in line with the requirements and targets of the Paris Agreement.** They should also strike a balance between the different expectations of our stakeholders, with whom we remain in constant dialog. This includes above all the provision of affordable and climate-friendly energy and ensuring the security of supply.

The most important step for achieving our climate protection goals is the early phaseout of coal. Based on the assumption that renewable energies will be ramped up as necessary and the significant progress in expanding the grids in accordance with the plans announced by the German government will be achieved, we will phase out the use of coal at EnBW by 2028. Even before the Coal Phaseout Act, we voluntarily divested ourselves of 2,700 MW of particularly carbon-intensive generation capacity. We have already implemented appropriate human resources measures such as further training and forward-looking human resources planning for employees working in conventional generation. Some employees from the area of conventional generation are already bringing their technical expertise to other areas of the company, such as at our offshore wind turbines.

Our climate protection goals



Goals	• Reduction in emissions[1] by **50%**	• Reduction in emissions[1] by **70%**	• **Climate neutral** in Scopes 1 and 2[2]
Measures	**2020 to 2027** • Planning and implementing the fuel switch to climate friendlier fuels, use of green electricity with guarantees of origin at the sites in Heilbronn, Altbach/Deizisau and Stuttgart-Münster • Decommissioning the remaining coal power plant capacities of around 2 GW	**2027 to 2030** • Planned phaseout of coal by 2028 • Concluding the fuel switch at the power plant sites in Heilbronn, Altbach/Deizisau and Stuttgart-Münster • Making our gas power plants H_2-ready • An increasing proportion of renewable electricity supply in the grid business • Preparing to switch over our gas power plants to hydrogen	**2030 to 2035** • Using green gases (hydrogen) in our power plants • High proportion of renewable electricity supply in the grid business • Supporting the ramp-up of hydrogen in the heating sector • Offsetting the remaining CO_2 emissions with recognized climate mitigation projects

1 Reduction in Scope 1 and 2 emissions compared to the reference year 2018.
2 Achievement of our climate protection targets in line with the 1.5 degree path of the Paris Agreement.

This video explains our **reduction path.**

Online ↗

Milestones

Scope 1 and 2: emissions in our value added-chain

An important milestone for reducing our CO_2 emissions will be the fuel switch at the power plants in Heilbronn, Altbach/Deizisau and Stuttgart-Münster. Specific emissions from electricity generation will be reduced by around 60% as a result of the switch from hard coal to natural gas. The conversion work at the plants is already underway and is due to be completed in 2026. The aim is to operate the plants from the middle of the 2030s onwards with climate-neutral gases, primarily green hydrogen, so that they will then generate climate-neutral energy. We plan to phase out coal power plants with around 2,000 MW of generation capacity that are still on the market by 2028.

Various measures will be required to reduce our indirect emissions from purchased or acquired energy (Scope 2). The CO_2 emissions from the general electricity mix will be reduced in the coming years by the expansion of renewable energies and the gradual phaseout of fossil fuel-fired generation. This will also lead to a reduction in our Scope 2 emissions. Furthermore, we plan to specifically utilize green electricity.

Scope 3

When it comes to reducing our Scope 3 emissions, the volume of our gas sales is particularly important. This will be dependent on various developments in the heating sector. Alongside a further increase in the use of heat pumps, the partial mixing of the natural gas used to generate heat with climate-neutral gases and the expansion of climate-neutral district heating, there will be a general reduction in the need to heat buildings due to energy-efficient refurbishment and a fall in the average age of the residential building stock. We will push forward these developments as a partner, especially when establishing a hydrogen infrastructure. This will enable us to offer our gas customers a more environmentally friendly energy supply in future as we align our sales portfolio towards green gases.

The last step to reaching climate neutrality
We already set ourselves the target in 2020 of becoming climate neutral with respect to Scope 1 and 2 emissions by 2035. We plan to offset any non-reducible, residual greenhouse gas emissions by supporting recognized climate change mitigation projects that are carried out according to the highest standards (such as the Gold Standard). Just like Netze BW, our subsidiary Energiedienst was already in previous years measuring its Scope 1, Scope 2 and some of its Scope 3 emissions to ensure they remain climate neutral.

Netze BW won the **German Sustainability Award** in the grid infrastructure category.

Online ↗

Sustainable financing

The use of **sustainable financing instruments** underpins our corporate strategy and makes a contribution to achieving national and international sustainability targets, above all the Paris climate protection targets and the UN Sustainable Development Goals (SDGs) (p. 30 ff.↗). Since 2018, we have successfully issued several **green bonds** on the capital market. As of 31 December 2023, these bonds had a total volume of €5 billion. We issued a green subordinated bond with a volume of €500 million on 23 January 2024. In accordance with our Green Financing Framework, the proceeds from our green bonds are exclusively used in the areas of renewable energies (offshore wind, onshore wind and photovoltaics), clean transport (charging infrastructure for electromobility) and the project category electricity grids that was newly added in 2022.

Further information on our **sustainable financial instruments** can be found on our website.

Online ↗

We provide detailed information on the allocation of the funds every year in our **Green Bond Impact Report,** which is published at the same time as the Integrated Annual Report. The green bonds thus support our investment in sustainability and in turn the key non-financial performance indicators in the environment dimension. The financing conditions for the **sustainability-linked syndicated credit line** are linked to selected non-financial key performance indicators. The proceeds from the **green promissory note of our subsidiary VNG** can only be used for environmentally sustainable projects: The focus in the medium to long term will be green gases, primarily biogas and sustainably produced hydrogen.

Information on how the funds from the green bonds are used can be found in the **Green Bond Impact Report** on our website.

Online ↗

Our Chief Financial Officer Thomas Kusterer has been named **"CFO of the Year"** and our sustainable financing was one of the reasons for this award.

Online ↗

Goals and performance management system

Performance management system

The management of the company comprises financial, strategic and non-financial goals and, as well as the finance and strategy goal dimensions, includes the dimensions customers and society, environment and employees. The centerpiece of this **integrated corporate management** is the performance management system (PMS). The most important financial and non-financial Group goals have been broken down into target agreements insofar as they are considered a sensible performance indicator for the respective area. The value drivers for the most important operating performance indicators that contribute to the achievement of targets for the key performance indicators (finance, strategy and environment goal dimensions) are reported in the quarterly performance reviews conducted at a Board of Management level. In terms of external communication, the PMS feeds into the **integrated reporting** of the financial and non-financial performance of the company based on the "International Integrated Reporting Framework." This Integrated Annual Report 2023 incorporates the financial and non-financial aspects of our business activities. The key performance indicators enable us to measure the degree to which goals are achieved and to manage our company.

TOP

Definition of the key performance indicators

We monitor the implementation of our strategy by means of a holistic goal and performance management system. This system strengthens integrated thinking in our company. At the same time, it underpins our comprehensive and transparent focus on performance and stakeholders. Our goal system comprises the five dimensions of finance, strategy, customers and society, environment and employees. A number of specific targets have been defined in each goal dimension and their achievement is continuously measured using key performance indicators. Linked with this goal system and the centerpiece of our corporate management is the performance management system (PMS). Quantitative target values are currently set for the key performance indicators for the 2025 strategy horizon and now for the first time also the 2030 strategy horizon.

The **financial key performance indicators** within the PMS are the adjusted EBITDA, the shares of the adjusted EBITDA accounted for by the segments, debt repayment potential, value spread and from 2024 onwards also the share of adjusted EBITDA accounted for by low-risk earnings and the proportion of taxonomy-aligned expanded capex:

- The **adjusted EBITDA** is the earnings before the investment and financial results, income taxes, depreciation and amortization and adjusted for non-operating effects. Adjusted EBITDA is a key performance indicator for the finance goal dimension, while the key performance indicators for the strategy goal dimension, which describe the shares of adjusted EBITDA accounted for by the segments (p. 71 f.↗ and p. 125↗) are derived from it.
- The key performance indicator **debt repayment potential** describes the retained cash flow in relation to net debt. The debt repayment potential measures the ability of EnBW to repay its debts from its current earnings potential. This performance indicator should enable us to achieve a controlled growth in earnings within the scope of our financial targets, while maintaining a solid investment-grade rating at the same time. It will guarantee that the financial profile of EnBW complies with the quantitative requirements stipulated by the rating agencies. Therefore, we regularly check whether our target value for the debt repayment potential complies with the current requirements of Moody's and S&P. Our most recent review led to an increase in the target value from ≥ 12 to ≥ 15 (p. 83↗ and p. 126↗).
- The **value spread** measures the surplus return over the minimum return on capital employed before taxes in a reporting period. It is calculated by deducting the minimum return on capital employed before tax, defined by the weighted average cost of capital (WACC), from the return on capital employed before taxes that was actually achieved (p. 84 f. and p. 126↗). Value spread will no longer be classified as a key performance indicator relevant to the control of the company from the 2024 financial year onwards and will be replaced by the new key performance indicators share of adjusted EBITDA accounted for by low-risk earnings and proportion of taxonomy-aligned expanded capex.
- The **share of adjusted EBITDA accounted for by low-risk earnings** is the sum of the adjusted EBITDA for the System Critical Infrastructure segment and the adjusted EBITDA for the Renewable Energies area in relation to the adjusted EBITDA for the EnBW Group. The external financing of our necessary investment is an important part of the EnBW strategy. In contrast to some of its competitors, EnBW operates along the entire value added chain. Against this background, it is especially important for EnBW to determine the share of low-risk activities for the rating agencies. The target level for the debt repayment potential that is required to achieve a certain rating class is dependent on this performance indicator. At the moment, a share of low-risk business ≥ 70% should guarantee that a debt repayment potential of 15% is sufficient to retain the current rating target (p. 93 f.↗).
- For a definition of the **proportion of taxonomy-aligned expanded capex,** please refer to our taxonomy section on p. 107 ff.↗. External financing is an important tool for successfully implementing the EnBW strategy, while the EU taxonomy provides a central framework for the investment strategy of banks and investors who have a focus on sustainability. By reporting on sustainable investment both at our fully consolidated companies and also at entities accounted for using the equity method, we are placing great importance on the performance indicator proportion of taxonomy-aligned investment. Furthermore, financial institutions (banks and investors) are obligated in the EU Taxonomy Regulation to report on the proportion of sustainable investment in their investment strategies. Companies who are already aligning their investment strategies according to the criteria in the EU taxonomy are thus more attractive to investors and are able to position themselves for a sustainable future.

In addition to the financial key performance indicators, the PMS also includes **non-financial key performance indicators:**

The **customers and society goal dimension** comprises the Reputation Index, the Customer Satisfaction Index and the SAIDI (System Average Interruption Duration Index) Electricity:

- In order to calculate the **Reputation Index,** a total of around 5,000 people – from the stakeholder groups relevant for the EnBW brand of customers, the wider public, industrial companies, opinion leaders and investors – are asked about their impressions of the EnBW brand by an external market research institute. Results are collected for each stakeholder group about the distinctiveness of the brand and their assessment of the competence of and emotional attitude towards the EnBW brand. These are merged together to form a Reputation Index. The individual reputation indices for each stakeholder group are weighted equally to form a consolidated and reported Reputation Index (p. 87↗ and p. 127↗).

- The key performance indicator **Customer Satisfaction Index** assesses the average satisfaction of private end customers for electricity over the year, which is directly linked to customer loyalty. The information is compiled using customer surveys about the two brands EnBW and Yello conducted by an external service provider. The Customer Satisfaction Index allows us to draw conclusions about how well we are meeting the needs and wishes of surveyed customers (p. 88↗ and p. 127↗).
- **SAIDI Electricity** serves as the key performance indicator of supply reliability. It specifies the average length of supply interruption in the electricity distribution grid experienced annually by each connected customer. SAIDI Electricity includes all unscheduled interruptions to supply that last more than three minutes for the end consumer. The definition and calculation of this performance indicator is based on the guidelines issued by the Network Technology / Network Operation Forum (FNN) of the VDE (German Association for Electrical, Electronic & Information Technologies) (p. 92↗ and p. 127↗). The reliability of the supply in the grid areas operated by our grid subsidiaries builds on our comprehensive investment in grids and facilities as well as our system expertise.

The key performance indicators in the **environment goal dimension** are the installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE and CO_2 intensity:

- **The installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE** are measures of the expansion of renewable energies and refer to the installed output of the power plants and not to their weather-dependent contribution to electricity generation (p. 93 f.↗ and p. 128↗).
- The emissions of CO_2 from own generation of electricity for the Group, as well as the volume of electricity generated by the Group without the contribution made by the nuclear power plants, form the basis for the calculation of the key performance indicator **CO_2 intensity.** This performance indicator is calculated as the ratio between the emissions and the generated volume of electricity and thus specifically describes the amount of CO_2 released per kilowatt hour. By discounting the electricity generated by nuclear power plants, the performance indicator will not be influenced by the phasing out of nuclear energy (p. 95 ff.↗ and p. 128↗).

The People Engagement Index (PEI) and LTIF (Lost Time Injury Frequency) are utilized as performance indicators in the **employees goal dimension:**

- The **PEI** expresses how engaged employees are in their work at EnBW. It is compiled at all companies with more than 100 employees (except for the Independent Transmission Operators [ITOs]) as part of an employee survey carried out by an external, independent service provider. It is determined based on the first question of the standardized list of questions "How happy are you working for the EnBW Group / a company in the Group?" It is a question that uses a rating scale from 1 (I do not agree at all) to 5 (I agree completely). The value determined is then converted to a scale of 0 to 100 (p. 101↗ and p. 128↗).
- **LTIF** is calculated on the basis of LTI (Lost Time Injuries), which denotes the number of accidents during working hours which have occurred exclusively because of a work assignment from the company and result in at least one day of absence. LTIF indicates how many LTI occurred per one million working hours performed. According to the current definition, the calculation of the LTIF overall includes all companies with more than 100 employees. For the calculation of the LTIF for companies controlled by the Group, those companies engaged in the area of waste management are excluded because the number of accidents deviates significantly from that in the core business in the energy industry. Moreover, companies that are fully consolidated in the EnBW Group for the first time in the respective reporting year will not be included in the LTIF for companies controlled by the Group for a transitional period of three years if the LTIF calculated for the respective company deviates significantly from the LTIF for companies controlled by the Group. This transitional period will make it possible to take measures to improve the area of occupational safety. External agency workers and contractors are not taken into account in either performance indicator. In future, the existing LTIF performance indicators will be replaced by LTIF energy (excluding waste management) and LTIF overall, which includes waste management. According to the new definition, both performance indicators cover the entire group of consolidated companies for the financial reports, including companies with less than 100 employees.

Newly fully consolidated companies will not be included in LTIF energy (excluding waste management) for a maximum transitional period of three years if the LTIF calculated for the respective company deviates significantly from the LTIF at a Group level. Contractors are not taken into account in either performance indicator (p. 105↗ and p. 129↗).

TOP **Financial and non-financial key performance indicators and targets**

Goal dimension	Goal	Key performance indicator	2023	Target for 2025	Target for 2030
Finance	Securing profitability	Adjusted EBITDA in € billion	6.4	3.2[1]	5.5 – 6.3
	Managing the financial profile	Debt repayment potential in %	41.3	≥ 15[2]	≥ 15[2]
	Increasing Group value	Value spread in %	10.2	–[3]	–[3]
	Robustness of the earnings potential	Share of adjusted EBITDA accounted for by low-risk earnings in %[4]	–	≥ 70	≥ 70
	Focus on the energy transition	Proportion of taxonomy-aligned expanded capex in %[4]	–	≥ 85	≥ 85
	The EnBW Group, p. 71 f.↗ | Forecast, p. 125 f.↗ | Report on opportunities and risks, p. 130 ff.↗ | Multi-year overview, p. 311↗				
Strategy[5]	Share of result accounted for by "Smart Infrastructure for Customers"	Share of overall adjusted EBITDA in € billion	0.2/3.8%	0.6/20.0%	0.7 – 1.0
	Share of result accounted for by "System Critical Infrastructure"	Share of overall adjusted EBITDA in € billion	1.8/27.8%	1.3/40.0%	2.3 – 2.6
	Share of result accounted for by "Sustainable Generation Infrastructure"	Share of overall adjusted EBITDA in € billion	4.6/73.0%	1.3/40.0%	2.7 – 3.0
	The EnBW Group, p. 71 f.↗ | Forecast, p. 125↗ | Report on opportunities and risks, p. 130 ff.↗ | Multi-year overview, p. 311↗				
Customers and society	Reputation	Reputation Index	55	55 – 59	56 – 60
	Customer proximity	EnBW/Yello Customer Satisfaction Index	130/161	125 – 136/ 148 – 159	148 – 157/ 155 – 175
	Supply reliability	SAIDI Electricity in min./year	19.3	< 20	< 20
	The EnBW Group, p. 87 ff.↗ | Forecast, p. 127↗ | Report on opportunities and risks, p. 135↗ | Multi-year overview, p. 312↗				
Environment	Expand renewable energies (RE)	Installed output of RE in GW and the share of the generation capacity accounted for by RE in %	5.7/46.9	6.5 – 7.5/> 50	10.0 – 11.5/ 75 – 80
	Climate protection	CO_2 intensity in g/kWh[6]	347	380 – 440	90 – 110
	The EnBW Group, p. 93 ff.↗ | Forecast, p. 128↗ | Report on opportunities and risks, p. 135 f.↗ | Multi-year overview, p. 312↗				
Employees	Employee engagement	People Engagement Index (PEI)[7]	82	77 – 83	77 – 83
	Occupational safety	LTIF for companies controlled by the Group[8,9] LTIF overall[8] LTIF energy[9,10] LTIF overall[10]	2.4 3.7 – –	2.1 3.5 – –	– – ≤ 2 ≤ 3.3
	The EnBW Group, p. 101 ff.↗ | Forecast, p. 128 f.↗ | Report on opportunities and risks, p. 136↗ | Multi-year overview, p. 313↗				

1 It was already possible to exceed this target in the 2023 financial year and in our current plans we now also expect to exceed the earnings target for 2025.
2 EnBW regularly checks the target value for debt repayment potential to ensure it can maintain its rating target. In this context, the target value was raised to ≥ 15.
3 Value spread will be replaced from 2024 onwards by the new key performance indicators share of adjusted EBITDA accounted for by low-risk earnings and proportion of taxonomy-aligned expanded capex.
4 This performance indicator will be relevant to the ongoing management of the company from 2024 onwards.
5 The sum of the three segments does not correspond to the adjusted EBITDA for the EnBW Group. €-293.9 million (-4.6%) is attributable to Other/Consolidation in the 2023 financial year (p. 71 f.). The target value for 2030 includes €–0.2 to €–0.3 billion in Other/Consolidation.
6 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW. If the share of positive redispatch that cannot be controlled by EnBW is taken into account, CO_2 intensity would be 393 g/kWh for the reporting year (previous year: 508 g/kWh). The CO_2 intensity including nuclear generation for the reporting year was 366 g/kWh (previous year: 401 g/kWh).
7 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except ITOs)).
8 The LTIF for companies controlled by the Group excluding waste management and LTIF overall, which includes waste management, only includes companies with more than 100 employees excluding external agency workers and contractors.
9 Newly fully consolidated companies are not included for a maximum transition period of three years.
10 LTIF energy (excluding waste management) and LTIF overall, which includes waste management, cover the entire group of consolidated companies for the financial reports, including companies with less than 100 employees excluding contractors.

Interdependencies

In order to give a comprehensive portrayal of the company, we are convinced that it is not only necessary to present economic, ecological and social aspects, but also to illustrate and provide an analysis of interdependencies between them. To further encourage the idea of a holistic corporate management approach within EnBW, we promote integrated thinking within all important company processes. In doing so, we anchor not only financial but also non-financial aspects into decision-making processes.

Since the 2021 financial year, we have illustrated the progress we have made in anchoring integrated thinking in our company using the investment approval process as an example, and have thus also been able to highlight the increasingly important role played by non-financial aspects.

Alongside economic and strategic factors, this type of sustainability evaluation has become a fixed component of the approval process followed by the EnBW investment committee and the EnBW Board of Management, providing information relevant to the decision-making process.

The investment approval process is defined by the entire Board of Management. Individual projects are discussed and recommendations drawn up by the investment committee (InC). Alongside the Chief Financial Officer, the members of the InC include representatives from all remits of the EnBW Board of Management and various specialist departments, including the sustainability department. The InC develops recommendations that are presented to the entire Board of Management together with the project documentation submitted by the specialist departments.

When evaluating individual investment projects, we not only evaluate the strategic alignment, funding requirements, profitability and impact of the project on the key financial performance indicators but also take **the following steps of the sustainability evaluation** into consideration on an equal basis in the investment approval process.

- **Business partner evaluation:** Every business partner (supplier, service provider, joint venture partner, company being acquired) is assessed with respect to its management of social and environmental sustainability. The business partner is also screened and evaluated to identify any controversies related to sustainability in the last five years with respect to corporate/compliance misconduct, labor law, human rights, environmental and product responsibility.
- **Project evaluation:** Examining the planned project and/or project category with respect to sustainability. We evaluate the impact of the project category (e.g., wind power, solar, fuel switch, fiber-optic) on the three areas of the climate, environment and people.
- **Sustainability alignment:** The project is examined from a strategic perspective to determine whether it complements our sustainability-aligned business plan.

Investment approval process

Investment decision

Strategic aspects
- Strategic alignment based on business/investment strategies and Group strategy of EnBW

Sustainability aspects
- Business partner evaluation
- Project evaluation
- Sustainability alignment

Financial aspects
- Finance needs and budget
- Profitability
- Impact on the financial key performance indicators

Business partner evaluation
- Strategic alignment of EnBW and affiliated companies
- ILO Core Conventions
- Accident/death rates
- Management system for occupational safety and health protection
- Environment/energy management system
- Screening for controversies
- ...

Project evaluation
- Impact on the climate (focus: emissions)
- Impact on the environment (e.g., complying with the EU taxonomy criteria)
- Impact on the local population (e.g., residents)
- ...

Sustainability alignment
- Impact on the non-financial key performance indicators
- Contribution to the Sustainability Agenda
- Contribution to the Sustainable Development Goals (SDGs)
- ...

Corporate governance

Corporate management

Good corporate governance is an essential part of the corporate culture at EnBW. We are convinced that responsible and transparent corporate governance strengthens the trust and confidence that customers, capital providers, employees and the general public place in the company, thereby contributing to its long-term success. The Board of Management and Supervisory Board have the responsibility of managing and supervising the company above and beyond merely fulfilling statutory requirements, but to do so in accordance with recognized benchmarks for good corporate governance and in harmony with the principles of a social market economy, guaranteeing the continued existence of the company and ensuring a sustainable increase in its added value. Therefore, we also predominantly meet the recommendations of the German Corporate Governance Code (DCGK) in the version from 28 April 2022.

The **declarations of compliance from previous years** are published here.

Online ↗

As the member of the Board of Management responsible for corporate governance, Colette Rückert-Hennen monitored conformity with the German Corporate Governance Code at EnBW and reported extensively to the Board of Management and Supervisory Board on all current themes pertaining to corporate governance. Both boards acknowledged her report and addressed the recommendations and suggestions in the Code. They subsequently approved the company's annual declaration of compliance pursuant to section 161 German Stock Corporation Act (AktG) on 7 December 2023. The current declaration of compliance is part of the Integrated Annual Report (p. 161 ff.↗) and is also published at www.enbw.com/declaration-of-compliance. The remuneration report can be found in a separate report at www.enbw.com/corporate-governance.

Management and supervision

Board of Management

Allocation of responsibilities at Board of Management level (as of 9/3/2024)

Dr. Georg Stamatelopoulos Chairman	Thomas Kusterer Finance, Deputy Chairman	Colette Rückert-Hennen Sales and Human Resources	Dr. Georg Stamatelopoulos (on an interim basis) Sustainable Generation Infrastructure	Dirk Güsewell System Critical Infrastructure
• Corporate development • Sustainability • Strategy and energy economy • Communications / policy • IT and Digital Office • Corporate security • Enterprise development and transformation	• Accounting and tax • Controlling • Finance • Investor Relations • M&A • Digital finance and finance transformation • Equity investment management • Purchasing • Risk management/ICS • Risk management for trading • Venture Capital • Performance in growth	• Personnel • HR strategy • Sales, marketing and operations • People-centered transformation • Legal • Auditing • Regulatory management • Compliance management and data protection • Boards and shareholder relationships • Occupational medicine and health management • Real estate management	• Conventional generation/ nuclear • Renewable generation • Coordination technology • Waste management / environmental services • Decentralized energy services • Occupational safety, environmental protection and crisis management • Research and development • Trading	• DSO [1] electricity / gas • TSO [2] electricity / gas • Grid technology • Telecommunications • Gas value chain • Innovation management

1 Distribution system operator.
2 Transmission system operator.

Further information on the **Board of Management** of EnBW AG can be found on our website.

Online ↗

As of 31 December 2023, the Board of Management of EnBW AG consisted of five members. As of 9 March 2024, the Board of Management of EnBW AG consists of four members. In the reporting period, the Chairman of the Board of Management up to the end of 8 March 2024 was Andreas Schell. Dr. Georg Stamatelopoulos has been Chairman of the Board of Management and Thomas Kusterer Deputy Chairman since 9 March 2024. Dr. Georg Stamatelopoulos will still be responsible for the remit "Sustainable Generation Infrastructure" until his successor has been appointed. The Board of Management is jointly responsible for managing Group business. In addition to the role of CEO, the tasks performed by the Board of Management are split into the remits of “Finance,” “Sales, Legal, Human Resources,” “Corporate Real Estate Management,” “Sustainable Generation Infrastructure” and “System Critical Infrastructure.”

Supervisory Board

The Supervisory Board of EnBW AG consists of 20 members in accordance with article 8 (1) of the Articles of Association. In accordance with the German Co-determination Act (MitbestG), an equal number of members represent shareholders and employees. Three employee representatives are nominated by the ver.di trade union. The Supervisory Board appoints the members of the Board of Management and advises them on their management of the company. It discusses the business performance, planning and strategy of the company together with the Board of Management at regular intervals and ratifies the annual financial statements. The Supervisory Board is always involved in decisions of fundamental importance to the company. Legal transactions and measures subject to the approval of the Supervisory Board are defined in its rules of procedure. In order for the Supervisory Board to optimally perform its functions, it has formed the following standing committees: a personnel committee, a finance and investment committee, an audit committee, a nomination committee, a mediation committee in accordance with section 27 (3) MitbestG, a digitalization committee and an ad hoc committee.

The full version of the **Report of the Supervisory Board** is published here.

Online ↗

Further information on the Board of Management and Supervisory Board can be found on our website in the Report of the Supervisory Board, the Integrated Annual Report under the section on “Corporate bodies” (p. 302 ff.↗) and the declaration of corporate management (p. 161 ff.↗). The declaration of corporate management according to sections 289f and 315d HGB is part of the combined management report and is also published separately at www.enbw.com/corporate-governance.

Annual General Meeting

You will find all of the information about our **Annual General Meeting** here.

Online ↗

The Annual General Meeting offers a platform for dialog with stakeholders and it is where shareholders exercise their rights with regard to company matters. The Annual General Meeting passes resolutions on the discharge of Board of Management and Supervisory Board members, the appropriation of earnings and the selection of the auditor. Resolutions of the Annual General Meeting only require a simple majority of votes in most cases. Each bearer share is equivalent to one vote.

Shares of EnBW AG are listed on the General Standard segment of the Frankfurt Stock Exchange. A stake of 46.75% of the share capital in EnBW AG is owned by each of both the Federal State of Baden-Württemberg – via its wholly owned subsidiary NECKARPRI GmbH and, in turn, via its wholly owned subsidiary NECKARPRI-Beteiligungsgesellschaft mbH – and by Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) via its wholly owned subsidiary OEW Energie-Beteiligungs GmbH.

Overall, the shareholder structure is unchanged as of 31 December 2023 when compared to the previous year.

Shareholders of EnBW

Shares in % [1]	
OEW Energie-Beteiligungs GmbH	46.75
NECKARPRI-Beteiligungsgesellschaft mbH	46.75
Badische Energieaktionärs-Vereinigung	2.45
Gemeindeelektrizitätsverband Schwarzwald-Donau	0.97
Neckar-Elektrizitätsverband	0.63
EnBW Energie Baden-Württemberg AG	2.08
Other shareholders	0.39

1 The figures do not add up to 100% due to rounding differences.

The ordinary Annual General Meeting of EnBW AG was held as a virtual event on 3 May 2023. It approved the proposal by the Board of Management and the Supervisory Board to distribute a dividend of €1.10 per share for the 2022 financial year to shareholders. Based on the shares entitled to dividends, this corresponds to a dividend payout of €297.9 million, which was disbursed on 8 May 2023.

The next ordinary Annual General Meeting will be held on 7 May 2024 in virtual form in accordance with the "Act on the introduction of virtual general meetings of stock corporations and amending other provisions."

Compliance and data protection

Compliance management systems

The **code of conduct** and other information on the theme of **compliance** are published here.

Online ↗

Compliance with the relevant legal regulations and internal company rules forms the basis for our business activities, is part of our corporate culture and is laid out in the code of conduct. Our compliance management systems (CMS) and functions are individually designed: They are based on company and sector-specific priorities and risks, the size of the company and other factors. They are designed to support each company – and thus the whole Group – in avoiding risks, liability claims and damage to reputation.

Depending on the type of corporate control over a company, the compliance-relevant companies with employees are either directly or indirectly integrated into the compliance management system of EnBW. The compliance management system focuses on the prevention, detection and sanctioning of corruption, the prevention of violations against competition and antitrust laws, and the prevention of money laundering in those companies directly integrated into the CMS. A total of 24 companies were directly integrated into the CMS of EnBW in the reporting year (previous year: 23). The CMS is regularly examined and updated both internally and externally.

The companies that are indirectly integrated into the CMS – Energiedienst (ED), Pražská energetika (PRE), Stadtwerke Düsseldorf (SWD), VNG and ZEAG as well as the ITOs (Independent Transmission Operators) terranets bw and TransnetBW – operate their own independent compliance systems. The preventative measures that these companies implement apply to all participating interests that are integrated into the respective compliance management system. We aim to safeguard our commercial success by combating compliance risks – especially money laundering, corruption and bribery. Preventative risk assessment methods, advisory services and training concepts have been implemented at EnBW, the compliance-relevant companies and the ITOs.

Compliance activities in the reporting year

Around **1,200** **participants** in events within the leadership campaign.

In 2023, we carried out the **leadership campaign** "Compliance & Privacy – Culture, Leadership, Dialog" to strengthen the compliance and data protection culture. The main themes of the kickoff event were the importance of an effective compliance and privacy culture for EnBW and the Board of Management's expectations of managers with respect to compliance and data protection. Afterwards, we also held other events to highlight why a good whistleblower culture relies on how well it is trusted by employees, why data protection is not just a hygiene factor but also a trademark for the company, how managers can influence unwritten rules and decision-making situations, and why tolerance is an important aspect of a good compliance culture.

We also held training courses for other target groups working in sensitive compliance areas (+31.6% more participants in comparison to the previous year). Among other things, we once again provided special training courses for employees who are responsible for certain tasks, such as auditing business partners or imposing trade and financial sanctions. All of our employees and managers are obligated to complete an e-learning course on the prevention of corruption and bribery every two years. New employees must complete this training during their first year of employment. All of the indirectly integrated companies also held **compliance training courses** to increase awareness among employees.

Number of participants in compliance training events [1]

	2023	2022	2021	2020	2019
Sensitive areas	1,877	1,275	716	839	904
New management personnel / employees	501	484	355	369	229
Management personnel	184	188	34	75	52
Total	**2,562**	**1,947**	**1,105**	**1,283**	**1,185**

1 At EnBW AG and directly integrated companies, excluding the participants in the leadership campaign.

The annual **compliance risk assessments** at EnBW investigate the corruption, antitrust, fraud and data protection risks and form the basis for all work relating to compliance. In 2023, they were carried out using a risk-based selection process at those companies directly integrated into the CMS. New legal developments such as the Act on Corporate Due Diligence Obligations in Supply Chains (Lieferkettensorgfaltspflichtengesetz, LkSG) (p. 53↗) were taken into account in our compliance risk assessment tools. In the implementation of regulatory requirements, the compliance department assisted with measures taken in response to the LkSG such as the EnBW policy statement (p. 53↗). This document defines, among other things, that the Human Rights Committee – comprising the heads of the sustainability and compliance departments – acts as the supervisory body for EnBW's risk management activities in relation to human rights and the environment.

The EnBW compliance department is available to provide advice on all **compliance issues** and can be reached via a hotline, e-mail or in person. This service is also available to all subsidiaries. In 2023, the hotline received around 1,100 inquiries relating to the key issues of sponsoring, donations and gifts. Advice was also provided on conflicts of interest and other compliance issues. Advisory services dealing with compliance themes at the indirectly integrated companies were also used to good effect.

In order to improve our compliance work, we have pushed forward our **digitalization initiatives.** For example, a piece of AI-based software for efficient auditing of business partners called "GePaRD" was developed and implemented in a Group-wide project. We also started the gradual rollout of our tool to optimize the documentation of and processes involved in business partner audits. In addition, we are continuing to improve our information and self-service options in order to make it easier for employees to independently work with compliance themes.

Compliance whistleblower system and suspected breaches

Our new **whistleblower system for reporting suspected compliance breaches** can be found here.

Online ↗

Detailed information on the EnBW whistleblower system and the reporting process can be found in the **rules of procedure relating to the EnBW Group's grievance process.**

Online ↗

A new tool was added at EnBW AG to the existing reporting channels in the 2023 financial year for whistleblowers to report suspected compliance breaches. The new EnBW whistleblower system provides people within the company and also external parties with a low-threshold opportunity to report compliance issues – in various different languages and anonymously if desired – either via an online reporting channel or using a telephone hotline (24 hours a day from Monday to Sunday). Our grievance process not only complies with LkSG requirements but also with the legal requirements for whistleblower systems in the Whistleblower Protection Act (Hinweisgeberschutzgesetz). At the same time, it can also be used to report discrimination or unequal treatment according to the General Act on Equal Treatment (Allgemeines Gleichbehandlungsgesetz). Alongside EnBW AG, the companies ED, PRE, SWD, VNG, ZEAG, terranets bw and TransnetBW have also established a whistleblower system and other reporting channels.

In the reporting year, a total of 65 suspected compliance breaches were reported to the central compliance department of EnBW AG. From the submitted reports, we identified 19 compliance breaches at directly integrated companies. None of these breaches were associated with bribery or corruption. There were no compliance breaches at indirectly integrated companies in the reporting year.

At the beginning of the reporting year, the Federal Cartel Office, Federal Network Agency and State Bureau of Investigation carried out an investigation into the suspected abuse of a dominant position on one or more balancing energy markets and the suspicion of the criminal manipulation of the market. EnBW AG was named as one of the accessory parties and cooperated fully with the authorities. The accusations are being dealt with internally. At the time this report was published, however, there were no indications of any deliberate unlawful behavior by employees.

In the 2023 financial year, we faced neither antitrust law penalty procedures nor third-party antitrust lawsuits. Law enforcement agency investigations of individual employees and former members of corporate bodies relating to the so-called Russian business deals and the sales tax carousel in CO_2 allowance trading also continued throughout 2023 without any discernible activity by the law enforcement agencies. It is not possible to say at the present time when these proceedings will end.

Data protection

In view of the increasing digitalization of our business activities, data protection plays an important role. Our efforts to bring more and more digitalization to the Group in order to both simplify internal processes and develop new business models are closely accompanied by the data protection department in an advisory capacity at an early stage. The interrelationship between data protection law and European regulations on data law are monitored and evaluated for EnBW above all in a cross-functional body so that the company can detect any need for action at an early stage. The directory of processing activities required by law is maintained in digital form. An automated process ensures that the documentation is regularly checked and updated. Data protection compliance risks are also specifically examined every year as part of a risk assessment. The data protection department works to guarantee that the rights of the data subject are respected through regular training to raise awareness, continuous improvement measures and audits. In the reporting year, an independent law firm reviewed the data protection management system. Regular reports are submitted to the Board of Management and supervisory bodies to ensure transparency and control. We meet the standards we have set for the processing of personal data by using internal data protection guidelines within the Group that define objectives, the principles for the processing of the data and the procedures themselves. We also have an established reporting system for reporting any data protection breaches. A network of decentralized data protection managers has been formed to support compliance with legal and internal Group regulations. This network regularly receives information, advice and training from the central data protection department. In sensitive areas of the company, digital learning activities and online seminars are used to raise employee awareness for this theme. We also offer special e-training courses and educational campaigns for areas of the company that work particularly closely with personal data.

In dialog with our stakeholders

Our stakeholders

The **Energy & Climate Protection Foundation** provides the ideal platform for dialog on the future of energy.

Online ↗

Continuous dialog with our internal and external stakeholders is an important element in the design and orientation of our business activities. The expectations of our stakeholders are taken into account in the strategic positioning of the company and when making business decisions. At the same time, we critically and constructively discuss the necessary conditions for the development of efficient, reliable and sustainable infrastructure with relevant stakeholders on the basis of transparent information. As part of this dialog, it is also important for us to listen to critical opinions such as those expressed at events held by our Energy & Climate Protection Foundation, in discussions within the "EnBW Climate Dialog" and at our annual event "EnBW Sustainability Dialog 2023." It is our belief that mutual understanding, social acceptance and trust are increased further through this **open and respectful exchange** of insights and perspectives. In addition, it can also help us to identify central developments and key or risk topics at an early stage. The dialog with stakeholders thus contributes to the economic success of the company. Therefore, we will continue to intensify this dialog – with a special focus on the themes of the energy transition, mobility transition, climate protection and sustainability.

Our stakeholder groups and selected opportunities for dialog

- Telephone conferences with investors and analysts, Annual General Meeting, Group Bankers' Day, investor update and road show
- Donation campaigns and relief efforts, participation and dialog with citizens, supporting entrepreneurs and young start-ups, engagement in art and culture, tours, information events, Open Door Days, activities with the Junge Stiftung
- Local authority Energy Day, local authority events, Energy Team Baden-Württemberg, regional council meetings, EnBW Sustainability Dialog, discussions with local politicians
- Dialog and discussion with customers, networking events, test customer panel, participation in trade fairs and congresses, sustainability campaign
- Dialog on handling coal and gas procurement responsibly, discussions on cooperation with suppliers
- Employee communication and services, opportunity to invest financially in three wind farms, diversity campaigns, social engagement of employees, opportunity for dialog with potential employees, sustainability challenge
- Events held by the Energy and Business Club, discussion formats and exchange of ideas with politicians, active communication via the media, discussion events held by the Energy & Climate Protection Foundation
- Funding program "Stimuli for Diversity," dialog on the climate and sustainability, campaigns for the environment and climate protection

Materiality analysis

We have continuously expanded our processes over the last few years for **identifying material themes** and linking them with the development of the company's strategy. Material aspects are determined based on our non-financial declaration and on the International Integrated Reporting Framework, as well as in accordance with standards for sustainability reporting issued by the Global Reporting Initiative (GRI). In addition, current developments flow into the determination of future key issues, such as the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) on climate-related risk reporting.

We consider themes to be material if they have a **significant influence on long-term value added** and thus the performance and future viability of our company. Contributions to the strategic orientation of the company as a sustainable and innovative infrastructure partner are of particular importance in this context. Furthermore, aspects reflecting any important economic, ecological and social impacts our company may have and that significantly influence the perception of stakeholders are also taken into account. Material themes are continuously implemented in the functional and business units, as well as in the individual companies of EnBW.

The **materiality analysis process** comprises three steps: the creation of an overview of the themes relevant to strategy and communication, the development of a list of themes relevant from the perspective of sustainability and the derivation of material themes from the reputation analysis. In parallel, these aspects are regularly compared with the main areas of focus for the Supervisory Board and Board of Management. Every step leads to a prioritization of themes and ultimately to a final list of the top themes. The material themes and events at EnBW in the 2023 financial year are allocated to the three segments in the overview of the segments (p. 22↗). By focusing on our material themes, we aim to make a significant contribution to the Sustainable Development Goals (SDGs) and generate added value for our stakeholders.

Sustainable Development Goals

The Sustainable Development Goals (SDGs) define the global framework for building a sustainable future. These **sustainability goals** were published by the United Nations in 2015 as part of the Agenda 2030. The 17 overarching goals and 169 targets focus on global challenges in an economic, ecological and social context. All sectors of society – including companies – have been called on to make their contribution to achieving the SDGs.

EnBW's contribution to the SDGs

As a sustainable and innovative infrastructure partner, we want to contribute to the achievement of these goals through our activities while also creating value for our stakeholders. In particular, we make a contribution to **four key SDGs.** It is fundamentally important for us as a company to address the concerns and interests of society and we carry out various activities and campaigns to this end every year.

Four key SDGs at EnBW – activities and performance indicators (examples)

SDG 7: Affordable and clean energy
- Expansion of renewable energies (RE)
- Climate-friendly products (e.g., green electricity)
- Key performance indicators: Installed output of RE, Customer Satisfaction Index

SDG 9: Industry, innovation and infrastructure
- Expansion and operation of electricity and gas grids
- Research, development and innovation
- (Key) performance indicators: SAIDI Electricity, SAIDI Gas

SDG 11: Sustainable cities and communities
- Expansion of quick-charging infrastructure for electromobility
- Expansion of broadband infrastructure
- Performance indicator: Number of EnBW quick-charging stations in Germany

SDG 13: Climate action
- Coal phaseout 2028 and climate neutrality 2035 (Scope 1 and 2)
- Biodiversity at EnBW sites
- (Key) performance indicators: CO_2 intensity (generation), CO_2 emissions

Other important SDGs at EnBW

4 Quality education · 5 Gender equality · 6 Clean water and sanitation · 8 Decent work and economic growth · 12 Responsible consumption and production

Corporate citizenship and social activities

Our commitment to addressing the concerns and interests of society is concentrated on the **core areas** of popular sport, education, social issues, the environment, and art and culture. We place our main focus on overriding social issues with the aim of making a positive contribution to the target groups of end customers, business partners and local authorities. We also refer you to the "Report on opportunities and risks" for more information on our engagement in this area (p. 135↗).

The Group guidelines on corporate sponsoring, memberships, donations and involvement with universities govern the goals, responsibilities, standards, principles and processes for EnBW AG and all of the domestic companies in which it holds a controlling interest. Companies based outside of Germany must comply with the EnBW guidelines for foreign companies. Donations are documented in a donation report that is presented annually to the Board of Management. In 2023, **donations made by the EnBW Group** came to €3.6 million, following €2.1 million in the previous year. Donations worth around €580,000 (previous year: €720,000) were attributable to EnBW AG. The main reasons for the rise in the total donations were an increase across the Group in aid provided in response to war and natural catastrophes and a growth in activities to mitigate the consequences of the energy crisis.

The EnBW Board of Management decided a number of years ago not to send Christmas gifts to business partners. Instead, we once again made donations to **social projects in Baden-Württemberg** in 2023 and supported eight charitable campaigns and campaigns initiated by readers of regional newspapers in Baden-Württemberg with total donations of €32,000. The main focus of our social engagement in 2023 were **relief campaigns** for people affected by war and natural catastrophes: As a response to the earthquake in the Turkish-Syrian border region at the beginning of 2023, we took action to provide support in the affected areas. This included €100,000 of emergency aid, of which €50,000 was donated directly to emergency aid measures in the region and €50,000 provided to our joint venture Borusan EnBW Enerji for local relief campaigns. We were able to raise almost €65,000 with our employee fundraising campaign for the victims of the earthquake via betterplace.org and a further €42,000 was raised during a Turkish themed week in the company canteens. In addition, employees were actively engaged in a variety of ways and supported the humanitarian aid in the affected region themselves to provide aid to the victims of the earthquake and help restore the heavily damaged infrastructure in the region. In 2023, we also offered further assistance to those people in Ukraine impacted by the war between Russia and Ukraine. The aid provided by EnBW was mainly in the form of in-kind donations. For example, we supplied technical equipment such as emergency generators and power transformers for the repair and maintenance of the damaged energy infrastructure in Ukraine. With these efforts, EnBW and its subsidiaries are taking part in an initiative organized by the Federal Ministry for Economic Affairs and Climate Action (BMWK) that has called for energy companies across Europe to offer assistance.

Since 2016, employees have regularly supported social and charitable projects with the **EnBW "Making it happen" bus.**

Online ↗

The **EnBW "Making it happen" bus** went on tour again in 2023 and the team supported a total of four selected social projects, which were each also awarded up to €5,000 for any necessary materials.

Various subsidiaries in the EnBW Group also addressed the concerns and interests of society in 2023. Some examples can be found below:

Stadtwerke Düsseldorf (SWD) donated €400,000 to the hardship funds administered by the Bürger-Stiftung Düsseldorf to help support low-income households in Düsseldorf. SWD also made in-kind donations to humanitarian aid organizations in Ukraine and provided financial support to various organizations assisting earthquake victims in Turkey and Syria. **Pražská energetika (PRE)** continued to provide support to the Charta 77 Foundation – Barriers Account, as well as other non-profit organizations focusing on charity, health, social and education activities, and environmental protection. In addition, PRE developed programs to help people impacted by fuel poverty and raise awareness of how to use energy efficiently. Via its subsidiary ONTRAS Gastransport (ONTRAS), **VNG** supported the "Foundation for volunteering and civic involvement in Mecklenburg-West Pomerania" in 2023 and also made donations to five charitable associations in its grid area who help people in need. As part of its "Mail instead of letter" campaign, **Netze BW** once again gave its customers the opportunity to receive requests to read the electricity meter electronically in 2023. The savings on postage, paper and printing costs were then donated to numerous charitable organizations in the local communities. This campaign also helps to reduce CO_2 emissions. Instead of sending Christmas gifts to business partners, Netze BW supported five charitable organizations in its grid area with total donations of €10,000 in 2023.

Learn more about our engagement in **art and culture** here.

Online ↗

In the area of **art and culture,** we are presenting the Sahara Project as part of the "Mack in ZKM" exhibition in cooperation with the Center for Art and Media (ZKM) in Karlsruhe from November 2023 to April 2024. This exhibition in the foyer invites visitors to explore photographs, collages and objects created by Heinz Mack, one of the most important German artists of the post-war generation. We also provided a platform for the organization release Stuttgart e. V. via a series of exhibitions called "release and art." Half of the proceeds raised by the artists was donated to the Stuttgart-based organization that provides advice and assistance to people with drug-related issues.

Corporate guidelines for party donations and lobbying

The **EnBW Code of Conduct** is available on our website in PDF format via the following link.

Online ↗

You will find a selection of the associations of which EnBW and its Group companies are **members** here.

Online ↗

Ensuring transparency with respect to our lobbying activities forms part of our sustainability activities (p. 28 f.↗). The **EnBW Code of Conduct** has been valid since 2009 for EnBW AG and all companies in which it holds a controlling interest. Our lobbying activities are coordinated in our offices in Brussels, Berlin and Stuttgart. As well as maintaining direct contact with political decision makers or their employees and participating in relevant events, we also engage in political dialog by publishing position papers and contributing to consultation processes either directly or via associations. At the same time, we hold our own specialized political events and conferences at our sites. Furthermore, we work together with sector associations and initiatives, research institutes, foundations and think tanks at a local, regional and European level. The EnBW Code of Conduct stipulates that no donations may be made to political parties, organizations affiliated with them, civil servants, elected representatives or candidates for public office.

In dialog with citizens

Dialog with citizens is important to us as an energy company. A large number of both in-person and virtual events was held in 2023 to give out information and encourage the participation of citizens. These included:

The closing event for a one-year, multistage dialog forum was held at our **GeoHardt geothermal project** (p. 48↗) in March 2023 in which the participants presented the report on their findings to the two project partners EnBW and MVV. GeoHardt also informed interested members of the public about the current status of the geothermal project at a digital information event in May. After confirming the investment decision for the **conversion and expansion of the pumped storage power plant in Forbach** in May 2023, we informed citizens and interested parties about planned construction work and answered their questions at an event held at the site in October. Also in October, we held the first large meeting with residents to mark the foundation of our **WärmeWerk Wörth** (p. 48↗). In cooperation with our partners – the City of Wörth am Rhein and Daimler Truck – we informed residents about measures that have been planned for investigating whether the deep geothermal energy could be used to provide heating to the local area and gave the residents an opportunity to ask questions. Citizens also had the opportunity for further dialog via an information stand set up at a local retailer.

In the area of **nuclear energy,** the main topics for dialog with citizens were the three-and-a-half month extension to electricity production at our power plant block Neckarwestheim II at the beginning of 2023 and the political discussions about the continued operation of nuclear power plants in Germany. We provided information on our procedures and stance on the subjects at, for example, a digital press event held at the end of March 2023. Information on the extension and end of electricity production and the latest news on the dismantling work at our two nuclear power plant blocks Neckarwestheim I and II was also provided in May at two large press events held at the site in Neckarwestheim that were attended by numerous representatives from the media.

Link to the **citizen participation platform.**

Online ↗

We plan, construct and operate wind farms and photovoltaic power plants in direct partnership with or through the participation of local authorities and citizens. Local citizens are able to use the **EnBW citizen participation platform** to participate financially in regional renewable energy projects. Three projects funded through such citizen participation models were implemented in Steinheim, Allmendingen and Häusern in 2023.

Research, development and innovation

Research and development

Goals

The goal of our research and development is to identify technological trends at an early stage, assess their economic potential and build up expertise in the business units. For this purpose, we carry out pilot and demonstration projects together with partners or customers directly at the site of their subsequent application. This ensures that successful research projects deliver innovations for our company. Research, development and innovation also lead to inventions and patents in many cases. The portfolio of patents fell by 6 patents in 2023 (previous year: +23); the EnBW Group thus held 242 patents (previous year: 248) at the end of the year. The patents held by EnBW focus mainly on the areas of renewable energies, gas and electromobility.

Selected activities

Further information on the **floating wind power plant Nezzy²** can be found on our website.

Online ↗

Wind energy: Offshore wind power plants with fixed foundations are limited to shallow waters with water depths of up to around 50 m. Floating platforms could be used to install wind turbines in deeper waters and are thus an important component of the offshore strategy at EnBW. We developed **Nezzy²** in cooperation with the engineering company aerodyn from northern Germany. Following successful tests on a 1:10 scale, a 1:1 model was constructed in 2023 and is due to enter test operation in 2024. In parallel, we analyzed the feasibility and costs of using floating platforms for publicly tendered projects in deep waters in Europe, such as in the Mediterranean Sea off the coast of Southern France. Our subsidiary Valeco launched the **"Pieux à ailettes réutilisables pour éoliennes flottantes" (PAREF)** project in 2023 with funding from the French government to carry out environmental research into how the construction and operation of floating platforms can positively impact underwater flora and fauna.

Further information on the **Offshore Drone Challenge 2024** initiated by EnBW and the DLR can be found here.

Online ↗

Further details on **Condition Monitoring 4.0** for wind turbines can be found online.

Online ↗

There are high logistical costs associated with the **servicing and maintenance of offshore wind turbines.** Since April 2022, we have been researching how **transport drones** can reduce the number of helicopter and ship deployments in conjunction with the German Aerospace Center (DLR). This three-year project is being funded by the Federal Ministry for Economic Affairs and Climate Action (BMWK). During the first test flight for the DLR drone superARTIS, we tested the communication between the wind park system and the drone initially on land at the EnBW onshore wind farms Schwienau II and III in October 2023. The aim of the **Condition Monitoring 4.0** (AutoDiagCM) project, which is being carried out in cooperation with the Karlsruhe University of Applied Sciences, is to develop a diagnostic system for monitoring the condition of onshore and offshore wind turbines by September 2025. This project is also funded by the BMWK. As part of the project, we have collected data on the condition of our turbines and cross-referenced it with incidents where there has been damage in the past. In addition, a new type of detector was also developed in 2023 to identify damage using the data. This pattern recognition system will not only enable us to identify damage before it occurs but will also suggest preventative measures and help avoid unplanned downtimes.

Photovoltaics: Since December 2022, we have been supporting the two-year project **PV4Rail** led by the Fraunhofer Institute for Solar Energy Systems. The aim of the project is to tap into unused potential in the generation of PV electricity. A concept for a system and an inverter will be developed that will allow PV parks located near to train tracks to feed electricity directly into the railway's own electricity grid. A roundabout route via the public 50 hertz electricity grid has so far been the only available option as there is no suitable inverter compatible with the 16 2/3 hertz frequency of the railway's electricity grid. In this project funded by the BMWK, EnBW is developing the electrical concept and evaluating profitability.

Our subsidiary **EnPV** has developed a new photovoltaic cell design that promises higher cell efficiency at lower production costs when compared to the mass market cells currently available. Novel laser processes enable EnPV to employ a simple method to position all the contacts on the rear of the cell and in doing so largely remove the need for the material silver. In August 2023, EnPV signed a memorandum of understanding with a North American PV producer to manufacture the EnPV technology in a joint pilot plant.

Further information on the **Hardt geothermal project** can be found here.

Online ↗

Geothermal energy: In addition to the production of electricity, geothermal energy has the potential to reduce the use of fossil fuels in heating networks. We support our business partners, such as local authorities, in decarbonizing their heating networks using geothermal energy. We have held the geothermal license for the Mannheim-Heidelberg-Speyer region together with MVV since August 2020. This license grants us the right to examine how geothermal energy can be used to decarbonize the local district heating system within this region. The two companies founded the company **GeoHardt** for this purpose at the beginning of 2021 and in 2023 they carried out studies to identify the precise target areas for boreholes and the associated drilling sites.

A geothermal plant in **Bruchsal** that is operated jointly with the company Stadtwerke Bruchsal is already reliably supplying a nearby police station with geothermal heat today. We were able to increase the amount of heating energy in the 2022/2023 heating period to 2,600 MWh (previous year: 2,400 MWh) and fully cover the customer's demand. Now that it has been demonstrated that the geothermal plant is capable of stable operation, it will be integrated into the operational unit for generating district heating. Geological studies carried out as part of the research will be used to determine whether the heating production can be expanded so that other customers can be supplied with heat from geothermal power. In the meantime, the technology in the electricity generation plant has been upgraded so that it generated 2,200 MWh of electricity, which is more than twice as much as in the previous year.

EnBW also founded the **WärmeWerk Wörth** together with Daimler Truck and the City of Wörth am Rhein in 2023. It will examine the different possibilities for delivering a climate-neutral energy supply to both the Mercedes Benz factory in Wörth and also the City of Wörth am Rhein. If a suitable solution is found, the plan will be to construct and operate a geothermal power plant to provide heating. A major aim of the partners is to utilize geothermal heat in the existing local heating grids in the municipality.

Further details on the **large-scale heat pump in Stuttgart-Münster** are available online.

Online ↗

We are taking a further step towards achieving climate neutrality for our regional district heating supply at the site of our Stuttgart-Münster combined heat and power plant. A large-scale heat pump will utilize the waste heat from the cooling water draining from the site to generate 20 MW of district heating. The **large-scale heat pump in Stuttgart-Münster** will be one of the first plants in Germany on this scale, setting new standards in how waste heat is used to meet energy needs. The new plant will be placed into operation in the first half of 2024.

Find out more about the **hydrogen projects in Wyhlen** here.

Online ↗

Hydrogen from renewable energies: We also want to provide our customers with carbon-neutral gaseous energy sources in the long term. We are investigating how to generate affordable green hydrogen with funding from the German government at the H_2-Wyhlen and H_2Mare field labs. In **Wyhlen,** our subsidiary naturenergie hochrhein is expanding an electrolysis plant that was constructed with funding from the Federal State of Baden-Württemberg by 5 MW to 6 MW. It will supply industry and mobility customers with green hydrogen generated using green electricity. A total of 30 companies showed an interest in the public invitation to tender for the direct distribution of the green hydrogen. The construction of the plant at the Wyhlen hydroelectric power plant is due to begin in 2024. The work to expand the production capacities should be completed by the end of 2025. Together with a consortium of 35 industry and research partners, we are carrying out research in the **H_2Mare** project into the production of green hydrogen directly at offshore wind power plants. The invitation to tender for the floating platform and various plant components will be issued by the end of the first quarter of 2024. The plant should be placed into operation in 2025 as the first plant in Germany for the generation of hydrogen and derived products at sea and will act as the basis for us to become the technological leader in the field of offshore hydrogen production.

Instead of using electrolysis, **climate-neutral hydrogen can also be produced from green ammonia.** In June 2023, EnBW, VNG and the Japanese energy company JERA signed a memorandum of understanding with the goal of examining the feasibility of constructing a demonstration plant. Ammonia is already available today in huge quantities and can be transported to its point of use more easily than hydrogen.

In the 20th episode of the **"Podcast on the future of energy,"** the head of the Green Gases division at VNG speaks about, among other things, the opportunities for hydrogen in Germany.

Online ↗

Hydrogen in the gas grid: Natural gas grids can be decarbonized using zero-emission energy sources like hydrogen – just like the electricity grid. At the field laboratory **"Energy Park Bad Lauchstädt"** in central Germany, we are investigating the entire value-added chain for green hydrogen on a large

The **“Energy Park Bad Lauchstädt”** demonstrates all stages of the value added-chain for hydrogen.

Online ↗

industrial scale – from its production from wind power and transport through to the storage and use of green hydrogen in a refinery – in a project led by VNG. The project has been running since September 2021 and is being funded by the BMWK. Following the final investment decision by the consortium partners in early 2023, the first milestones in the construction of the site have already been achieved. This included installing the first of the eight wind turbines, fitting a pig trap in the future hydrogen line and placing the new transformer station into operation. A first supply contract for green hydrogen has been concluded with the TotalEnergies refinery in Leuna. The 30 MW high-pressure alkaline electrolysis plant is due to be installed in 2024.

Further information on the **“Hydrogen Island Öhringen”** project can be found on our website.

Online ↗

Our subsidiary Netze BW started a pilot project called the **“Hydrogen Island Öhringen”** in 2020 in the City of Öhringen in the Hohenlohe district that is unique across Germany. A natural gas mix with a green hydrogen content of up to 30% will be produced in a separate island grid. The hydrogen will be produced from renewable energies using an electrolyzer on the premises of Netze BW that was placed into standard operation in November 2023. The mixed gas is now being used to supply heat to the company premises and 22 other buildings.

EnBW is currently working on the development of fuel cell systems for a variety of different applications. As part of a **pilot project at the Stuttgart-Feuerbach heating plant,** which is operated by EnBW Contracting, we are cooperating with Bosch to test five highly efficient fuel cells. The solid oxide fuel cells (SOFCs) with a total electrical output of around 50 kW will be used to cover the plant’s own electricity needs and to preheat any additional water that may be required. The project is due to run for a period of three years and will deliver important information on the robustness, durability and efficiency of the fuel cells and the requirements and processes involved in their planning, installation and operation. As part of a research project at the site of the geothermal power plant **in Bruchsal, EnBW is also testing a fuel cell system** from Bloom Energy with a total output of 300 kW. The system is due to be placed into operation in fall 2024. The fuel cell system can today already be used to produce a natural gas mix with a hydrogen content of up to 20%. It has the potential to be upgraded to operate with 100% hydrogen in the future. The electricity generated by the system will either be used to meet the geothermal plant’s own energy needs or sold.

Inductive charging: In multiple projects with passenger cars and commercial vehicles, EnBW is carrying out research into how to make electromobility with wireless charging even more environmentally friendly and expand the current limits on the range of the vehicles. An **electric bus that is inductively charged** has connected our site at the Port of Karlsruhe with the public transport system since 2021. In May 2023, another electric bus was placed into operation at the horticultural show in Balingen. It charges its batteries inductively while waiting at the two bus stops and during the journey along an approximately 400 m stretch of road. During the course of the year, we expanded the induction route so that the electric bus can now also be used on several bus routes in Balingen as part of the regular public transportation service.

We are also testing the **wireless charging process on passenger cars** and expanding our activities in this area. For example, two already existing projects with leading automotive companies and suppliers were combined into one research project in 2023 to standardize the prototypes produced by various manufacturers for wireless charging under consideration of statutory calibration guidelines. Tests were carried out in the car park at the EnBW City site in Stuttgart to investigate how well charging plates from one manufacturer that have been installed in the floor work with receivers from another manufacturer that have been installed on a car. Further tests of the inductive charging technology will be supported by the University of Stuttgart and are being funded by the German government. The aim is to bring the wireless charging of cars to market maturity and make it available to EnBW customers.

Further information on the **extraction of lithium** at the Bruchsal geothermal plant can be found here.

Online ↗

Sustainable extraction of lithium: In cooperation with the Karlsruhe Institute of Technology (KIT) and other parties, we investigated a process to sustainably extract lithium from thermal water as part of a research project in Oberrheintal. A **lithium recovery facility** with a reactor was initially constructed at the existing geothermal power plant in Bruchsal. The short- and long-term extraction experiments carried out at the site from February to August 2023 confirmed the results produced in the laboratory. After upgrading the process to work with three reactors, the team managed to complete the cycle in 2023 and also operate the facility with a lot less water and materials. The improved technology with three reactors was constructed in 2023. The experiments being carried out in the first half of 2024 will attempt to find the ideal carrier material and identify the economic potential of extracting lithium for electric car batteries here in Germany.

Expenditure and personnel

In the 2023 financial year, we spent €38.8 million (previous year: €28.1 million) on research and development. This increase was due to project-specific one-off expenses for the funded large-scale heat pump research project in Stuttgart and hydrogen projects at VNG. We received government research grants of €8.9 million (previous year: €4.8 million). There was a total of 66 employees in areas dedicated to research and development at the Group (previous year: 49). In addition, 259 employees (previous year: 282) were involved in research and development projects as part of their operational work.

Expenditure on research and development

in € million	2023	2022
Grids	10.9	12.3
Generation from renewables	15.7	8.0
Smart energy world, storage and electromobility	4.3	3.9
Hydrogen	7.1	3.5
Customer-related research projects	0.2	0.1
Other	0.5	0.4
Total [1]	**38.8**	**28.1**

1 The figures may not add up due to rounding differences.

Innovation

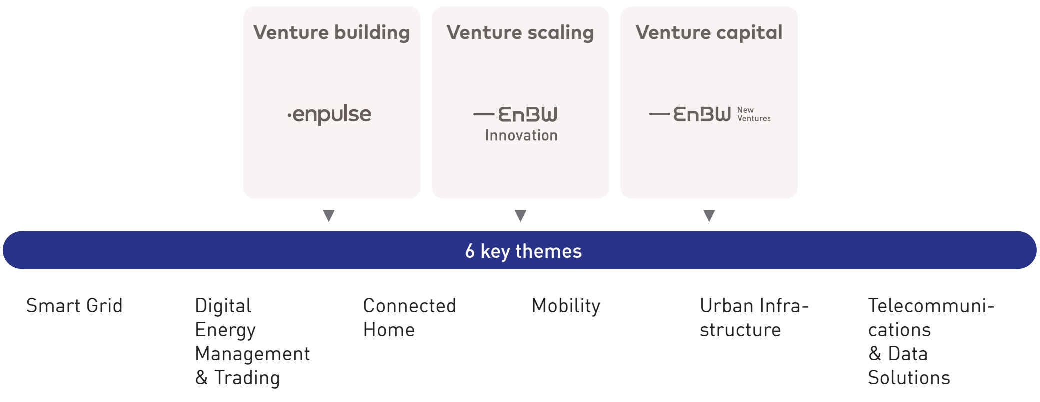
Goals

One fundamental aim of our business activities is to develop innovations that push forward the energy transition. Our innovation strategy is designed to promote innovative ideas in a more targeted manner in cooperation with committed company founders, investors and employees. At the same time, we aim to tap into new business fields for EnBW. One important focus is strengthening the entrepreneurial independence of the team and spinning off business models as start-ups as early as possible. In addition, we also invest in start-ups outside of the EnBW Group, in order to push forward existing innovations and establish a strong network of partners.

Innovation strategy

Our **innovation strategy** is based on **three central pillars:** venture building, venture scaling and venture capital. Overall, we are concentrating our activities on **six key themes:** Smart Grid, Digital Energy Management & Trading, Connected Home, Mobility, Urban Infrastructure and Telecommunications & Data Solutions.

Three pillars of the innovation strategy



Learn more about how **EnPulse** supports young start-ups.

Online ↗

Venture building: EnPulse is responsible for all of the early-phase activities of EnBW Innovation and develops new business models within the six key themes. It has a broad range of tasks, from analyzing trends and developing and testing initial business ideas through to the foundation of start-ups. EnPulse also offers start-up grants to young people with entrepreneurial ambitions and supports them in the further development of their business model for between six and twelve months. Two start-up grants were awarded in 2023 to **OXO Earth** and **Freeze Carbon.** OXO Earth enables forest owners to participate in the CO_2 markets and maximize the climate performance of regional forests. In contrast, Freeze Carbon operates a CO_2 marketplace that enables buyers and sellers to neutralize unavoidable emissions.

EnPulse has also invested in the company **metiundo.** This company provides property owners with access to live data on their energy and water usage in their real estate portfolio. It thus helps them produce legally compliant CO_2 reports and puts them in a position where they are able to take energy efficiency measures and utilize renewable energies. **Levl** was spun-off from EnPulse as an independent company in 2023. The start-up is building a large-scale virtual storage system for the energy transition and gives its customers the opportunity to monetize unused battery capacity. Furthermore, EnPulse sold its shares in **DigiPark,** a provider of digital parking solutions, to another current investor.

Venture scaling: EnBW Innovation supports young companies that have successfully entered the market so that they can continue to grow. It assists these companies with financing and also helps them to develop their growth strategy by acting as a strategic sparring partner, while its coaches use their experience to provide them with inspiration in their marketing, sales, operations and organizational development. The aim is to support start-ups as they scale up their business model and open up new segments, countries and fields of application.

Further information on **SMIGHT** can be found here.

Online ↗

One example of this is the start-up **SMIGHT,** which is a leading provider of IoT (Internet of Things) grid solutions and has around 90,000 measurement points installed in the low-voltage grid. SMIGHT uses its own retrofit sensor technology to collect real-time data from the local distribution grid and help ensure that the grid is operated efficiently. The start-up **ChargeHere,** which was founded as an independent company in 2022, offers charging solutions for the electrification of company fleets that take into account the current state of the grid when charging. ChargeHere is currently investigating the extent to which car batteries can be used to stabilize the electricity grids in the research and demonstration project Park4Flex led by the Institute of Power Transmission and High Voltage Technology (IEH) at the University of Stuttgart.

In 2023, EnBW Innovation received the **Digital Lab Award** in the category "Transport & Infrastructure" for its work which is awarded by Infront Consulting & Management in cooperation with the business magazine Capital. It thus achieved first place from among the best innovation units that focus on sustainability and digitalization.

Dr. Marc Umber, Head of Investment Team at **ENV,** was selected as an **Emerging Leader 2023** by Global Corporate Venturing.

Online ↗

Crispin Leick, Managing Director of **ENV,** was named as one of the 100 leading **Corporate Venturing Experts** by Global Corporate Venturing.

Online ↗

Learn more about the ENV investment **volytica diagnostics** here.

Online ↗

Venture capital: EnBW New Ventures (ENV) invests in fast-growing young companies offering digital and sustainable solutions, giving EnBW access to new technologies and business models. In turn, ENV offers these entrepreneurs access to professional investor expertise and a network of customers and suppliers in the energy and infrastructure sectors. ENV has invested in 18 start-ups and two venture capital funds so far. In addition, EnBW realized four successful exits and a majority takeover. Its evergreen business model had an initial investment volume of €100 million and allows any proceeds from the sale of shares in start-ups to be reinvested in new companies.

ENV made two new investments in 2023. The British start-up **VivaCity** uses artificial intelligence to help reduce traffic accidents and lower emissions in cities. The software provider **volytica diagnostics** based in Dresden has developed the smart, cloud-based battery diagnostics platform "vdx engine" that can analyze the condition of batteries and carry out simulations of their performance without any need for additional hardware. In addition, ENV invested in the Series A funding rounds for the companies **vialytics** and **CYCLE** in its existing portfolio. The intelligent road management system from vialytics can be used to automatically evaluate the condition of roads and bike paths. CYCLE provides delivery companies with electric bikes via an all-inclusive carefree subscription service. Furthermore, ENV participated in the Series B funding round for the company **Holo-Light** that raised US$12 million. Holo-Light's augmented reality software makes it possible for engineers to collaboratively create and edit 3D models for the development of new products and services. Stable data visualization is supported by XR (extended reality) streaming.

Procurement

Efficient and sustainable procurement processes

More information on the **sustainable supply chain** can be found on our website.

Online ↗

The purchasing department at EnBW views itself as a partner for the success of the company. It optimizes the cooperation between business, suppliers and the market from a commercial viewpoint while maintaining high quality standards. Digitalization is our path to developing efficient procurement processes that retain value. Central purchasing strives to achieve sustainable procurement and ensures compliance with applicable laws and EnBW guidelines. It is also contributing to the success of the energy transition by applying its expertise in the supplier market and making a commercial contribution to the profitability of projects. As a result, it makes an important contribution to the competitiveness of the company, helping to safeguard its future.

Procurement volumes of the EnBW Group by segment
in %

- 21.1 System Critical Infrastructure (2022: 25.5)
- 46.2 Sustainable Generation Infrastructure (2022: 50.4)
- 14.3 Smart Infrastructure for Customers (2022: 14.7)
- 18.4 Other (2022: 9.4)

The **procurement volume** of the EnBW Group in 2023 (without ITOs) amounted to around €6.3 billion (previous year: around €6.5 billion). The still-high level is due to major investment in fuel switch projects (conventional power plants), the expansion of the grids (electricity distribution grids, broadband) and solar power storage systems, which were contractually agreed in the reporting year.

The **procurement markets** were significantly impacted in 2023 by the effects of the war between Russia and Ukraine, considerably higher demand on our markets due to the acceleration in the energy transition, geopolitical uncertainties and high inflation (p. 58↗). Despite the tense situation on the markets overall, prices for important raw materials fell during the course of 2023 and were below the levels in the previous year. In order to minimize the negative impact on our business, we continuously refined our procurement processes and decision-making criteria also in 2023. We were able to counter the impact of geopolitical instability through a process of reorganization that shifted the focus more strongly to strategic purchasing. Furthermore, we significantly improved the quality of our forecasts for scarce goods with the Supply Chain Resilience project in 2023. Our forward-looking procurement management processes reduce the risk of price increases and supply disruptions.

Further diversifying our suppliers and service providers and improving cooperation with them plays an important role in our efforts to achieve a leading position on the energy market. **Supplier management** promotes successful cooperation with our suppliers because it makes their performance transparent and also makes continuous optimization in partnership possible. The careful selection of our suppliers is embedded in our risk management system and supports the observance of legal regulations and internally defined quality standards, as well as EnBW's aspiration for sustainable supply chains. Especially with regard to the selective internationalization of the business, central purchasing at EnBW AG is also developing an integrated **supply chain management** system in close cooperation with the business and functional units.

Supplier management process

1	2	3	4
Supplier identification	Supplier selection/ prequalification	Supplier evaluation/ classification	Supplier development
Identification and documentation of potential suppliers	Registration/onboarding, completion of the EnBW qualification stages	Assessing suppliers based on defined evaluation criteria, classification of the suppliers	Deriving development measures according to the classification of all suppliers

Sustainable procurement begins with the careful selection of suppliers. Central purchasing at EnBW AG uses a standardized **prequalification process** for this purpose. Suppliers are required to provide a self-assessment via a supplier portal on whether they have sustainable measures in place in the areas of environmental management, occupational health and safety, the respect for human

The **Supplier Code of Conduct** forms the basis for our cooperation with our suppliers. The PDF version is available to download here.

Online ↗

rights, the fight against corruption, data protection and quality management. Our **Supplier Code of Conduct (SCoC)** acts as a shared set of values and an important criterion for the selection and development of our suppliers. Some 97% of our suppliers (measured by procurement volume) had accepted the SCoC as the basis for our cooperation by the end of 2023. Suppliers who did not comply with the SCoC have been categorically blocked in our purchasing system since April 2023.

Respecting human rights and protecting the environment are key pillars of our corporate culture. In cooperation with our business partners, we are working to **make the supply chain more sustainable by improving transparency**. We will continue to align our procurement process even more strongly to social and ecological aspects in the next few years. This is reflected in our EnBW Sustainability Agenda (p. 28 f.↗).

EnBW was **honored for its sustainable reorganization of purchasing** with the "Sustainable Operations Championship Award" in the category "Human Rights Due Diligence" at the Sustainability Congress 2023. Further information on the award can be found here.

Online ↗

The **EnBW policy statement** can be downloaded in PDF format here.

Online ↗

The **EnBW Code of Conduct** can be found on our website.

Online ↗

The **EnBW Declaration on Human Rights** is available to download in PDF format.

Online ↗

In 2023, we worked intensively to **implement the requirements of the Act on Corporate Due Diligence Obligations in Supply Chains (Lieferkettensorgfaltspflichtengesetz, LkSG).** The LkSG has been in force since the beginning of 2023. It requires German companies to establish key elements of corporate due diligence in their own value-added chain and with respect to their suppliers. EnBW takes this responsibility seriously and has revised its human rights and environmental risk management system on the basis of the already existing structures and processes, so that it complies with the legal requirements. The entire Board of Management has collective responsibility for compliance with the LkSG risk management requirements at EnBW. One of the main tasks in 2023 was analyzing our processes to identify and prioritize risks in our own business areas and along our supply chains and **implementing targeted measures to ensure compliance with human rights due diligence.** We have, for example, integrated an automated risk evaluation process into our supplier management system that allows us to directly consider risks relating for human rights and the environment in the selection of suppliers and take appropriate preventative measures. Additional training courses are being used to raise the awareness of our employees in purchasing of human rights and environmental issues. To ensure that we can develop and implement targeted and effective measures, we have also established a Human Rights Steering Committee. In October 2023, we published a **policy statement** in accordance with the requirements in the LkSG. It describes how we will implement the LkSG in the future, which risks we have identified and prioritized and which measures we are taking to further minimize these risks. The EnBW policy statement is mainly based on the **EnBW Code of Conduct** and the **EnBW Declaration on Human Rights.** Our aim is to work even more closely together with our suppliers for this specific purpose and to keep the identified risks as low as possible from the outset, while continuing to improve the situation for people and the environment along our supply chain in the process.

Since the middle of 2022, our **CO_2 tracker for emissions in the supply chain** has enabled us to identify important emission generators and reduce our Scope 3 upstream CO_2 emissions in collaboration with our suppliers by carrying out more in-depth analyses. We have also been including CO_2 emissions and other sustainability criteria as measurable decision-making criteria in applicable invitations to tender since 2022 (p. 95 ff.↗). In 2023, we issued invitations to tender for the first time in which **CO_2 emissions were a relevant award criterion,** and we contractually obliged our suppliers, for example, to formulate and document clearly defined CO_2 reduction targets that cover both direct and indirect emissions. We are using these measures to further reduce the CO_2 emissions in our supply chains.

Our suppliers are provided with central access to information and self-service options in our **supplier portal.**

Online ↗

Various **automation and digitalization initiatives** have been introduced in central purchasing at EnBW AG with the aim of simplifying our processes even further and, in particular, ensuring that any recurring procurement activities are carried out with the minimal amount of effort. This underlines our commitment to develop efficient and sustainable procurement processes in line with the LkSG.

Our subsidiaries that are not overseen by central purchasing at EnBW AG address non-financial aspects in purchasing using their own mechanisms. **Energiedienst (ED)** works together closely with central purchasing at EnBW AG to procure important product groups using joint invitations to tender and framework contracts, as well as in the associated prequalification processes. In addition, orders are placed largely with regional suppliers from Germany, Switzerland or neighboring EU countries. Purchasing at the companies of **Pražská energetika (PRE)** ensures that suppliers observe practices such as the payment of social security contributions, the settlement of tax liabilities, the prevention of money laundering and compliance with their own code of conduct that includes ethical standards for cooperation. Potential suppliers must verify their compliance with these aspects by either submitting a sworn declaration or by presenting corresponding certificates when bidding for invitations to tender. At **Stadtwerke Düsseldorf (SWD),** sustainability aspects are anchored in the compliance guidelines, environmental management system manuals and process descriptions. In the area of procurement, SWD pays particular attention to the use of environmentally friendly and sustainable products. It also uses clauses in its supplier contracts as one way to reinforce the fight against corruption and bribery and to ensure observance of labor and social laws. In addition, SWD uses a Supplier Code of Conduct (SCoC) that includes joint obligations with the suppliers to generate economic, ecological and social added value along the entire supply chain. Alongside economic criteria, SWD places great importance on business ethics, integrity, legally compliant trade, compliance with working standards and environmental protection when selecting, evaluating and monitoring new and existing business partners. The fundamental principles for procurement at **VNG** are regulated by a code of conduct, the management handbook and Group guidelines. Aspects such as the prevention of corruption – which is embedded in the compliance management system – and environmental protection are fixed components of procurement processes.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 130 ff.↗).

Responsible raw materials procurement in the coal sector

Origin of coal supplies

With a view to the CO_2 reduction targets set by the German government, we will gradually replace hard coal with more climate-friendly energy sources. The most important milestones here will be the realization of the fuel switch projects and the planned phaseout of coal by 2028 (p. 31↗). Nevertheless, hard coal will still play a relevant role for EnBW as a source of energy over the next few years to ensure a reliable and economic supply of electricity. **Responsible raw materials procurement,** especially in the coal sector, is thus extremely important to us in order to strengthen our sustainable purchasing.

Origin of coal supplies to EnBW power plants

in million t	2023	2022
Columbia	1.1	1.6
USA	0.8	0.4
South Africa	0.1	–
Russia	0.1	2.0
Other	–	0.1
Total [1]	2.2	4.2

1 The figures may not add up due to rounding differences.

Around
48%
fewer coal deliveries than in the previous year.

2023 was characterized by a **sharp decrease in the amount of electricity generated from hard coal** in Germany, which was also reflected in the total amounts of hard coal delivered to the EnBW power plants. Deliveries fell from 4.2 million t in 2022 to 2.2 million t in 2023. This was not only due to general developments on the market but also the shutdown of Block 7 of the Heilbronn power plant due to damage. Colombia was the most important source of supply for power plant coal in 2023. However, deliveries fell from 1.6 million t to 1.1 million t because of the fall in demand. The second most important source of supply was the USA with 0.8 million t in 2023 (previous year: 0.4 million t). The Russian coal that was supplied to our power plants (0.1 million t) was from stocks stored at the ports before sanctions were imposed. As a result of the decrease in total deliveries and lower prices for coal, the **procurement volume** fell considerably from €1,150 million in the previous year to €260 million in 2023.

Further information on **coal procurement** can be found on our website.

Online ↗

The EnBW Group places great importance on knowing exactly **where the coal it uses is sourced** and being able to disclose this information. A total of 93.8% of our coal requirements were covered in 2023 by contracts where the respective producers are already known when the contract is concluded. The remainder is sourced from contracts concluded with trade intermediaries who usually define a quality standard and the countries from which the coal could be sourced, but not the source of the coal itself.

The Colombian coal delivered in 2023 was sourced from the producers Drummond and Cerrejón. The coal from the USA was sourced from various mining regions.

The opportunities and risks in relation to coal procurement can be found in the "Report on opportunities and risks" (p. 134 f.↗).

The **EnBW rules of conduct** can be downloaded in PDF format here.

Online ↗

Positioning, overarching concepts and due diligence for the protection of human rights

In accordance with the Guiding Principles on Business and Human Rights of the United Nations, we strive to procure coal responsibly. The EnBW coal supplier portfolio acts as the basis for our activities and it is updated on an annual basis. The sustainability performance of current and potential coal suppliers to EnBW is continuously examined and evaluated on the basis of the **EnBW rules of conduct** governing the responsible procurement of hard coal and other raw materials. The business partner audit comprises an audit with respect to both compliance and sustainability. We determine any future action based on the supplier evaluations resulting from these audits, such as requesting further specific information from selected suppliers. In the process, we pay close attention to the latest studies from competitors and international initiatives, as well as relevant information and contributions from civil society organizations.

Further information on the international business initiative **RECOSI** can be found here.

Online ↗

We have been a member of the **Responsible Commodities Sourcing Initiative** (RECOSI – formerly Bettercoal) since 2020. The independent audits carried out via RECOSI and the monitoring of the progress made by the individual producers with respect to fulfilling the RECOSI Continuous Improvement Plans flow into our process for auditing business partners. Currently, we are primarily active within RECOSI in the Colombian working group because this is where the majority of the coal deliveries are sourced. We have also been actively involved in the South African working group since 2023. In addition, we use RECOSI as a platform for exchanging information with our producers and, above all, with other stakeholders from civil society, with government representatives from the coal mining regions and with experts on individual countries and human rights.

Our rules of conduct form the foundation for our business activities. In the sustainability clause that is a fundamental component of all of our contracts with coal producers, we obligate our business partners to observe these rules of conduct. In addition to regular auditing of the sustainability performance of coal suppliers, a multistage auditing process is triggered in the event of suspected breaches of the rules. This can lead to temporary suspension or, as a last resort, the termination of the business relationship and thus exclusion from our procurement process. When new contracts are due to be concluded, the results of the analyses saved in the sustainability index are routinely presented to an internal **committee for the responsible procurement of hard coal and other raw materials (AVB)** with participation from all relevant specialist areas (especially credit risk trading, compliance, environment and sustainability). If any deviations from the minimum standards are identified for existing supply contracts, corrective measures are developed in cooperation with the producers and their implementation is monitored. In 2023, this committee held regular meetings to discuss possible additions to our portfolio of producers. This process was improved further in 2023 through the implementation of a digitalization project. Using an in-house tool called “Sus-Check,” we have made the process for all areas of the company participating in the AVB even more transparent and efficient.

Current developments

Colombia

Colombia was the most important country to EnBW for the procurement of coal in 2023. However, the amounts of coal sourced from Colombia have also fallen significantly due to the lower demand for coal in comparison to the previous year. As a member of the Colombian working group at RECOSI, we remain in close contact with both the producers and other European coal companies. This helps us to directly address relevant issues and stay informed about the latest developments with respect to the coal producers in Colombia above and beyond official sources.

USA

The USA was for a long time only of limited importance to us as a procurement country. Producers from the USA have now been added to our portfolio following a thorough sustainability audit and clarification of some outstanding issues.

Russia

We fully switched over to alternative sources of coal by August 2022, at which point we became completely independent from Russian coal. In 2023, our power plants only used residual stocks of Russian coal that were already being held in storage.

Other procurement alternatives

We are currently examining additional procurement options in Australia, Africa and Asia in addition to those in Colombia and the USA in order to further diversify our procurement portfolio in the medium term. The coal market is generally characterized by an elastic supply and the coal is mainly transported by ship, which means that there is no need for any kind of special pipeline infrastructure. Our procurement initiatives make a comprehensive audit of all potential new business partners just as critical as the quality of the available coal and whether it is suitable for our power plants.

Responsible raw materials procurement in the gas sector

Natural gas as a transition technology

In order to achieve our target of climate neutrality by 2035, we are working intensively on switching over our power plants initially from coal to more climate-friendly natural gas (fuel switch) and then to climate-neutral gas such as biogas or (green) hydrogen in the long term (p. 31↗). Natural gas plays an important role as a **transition technology** – either in the form of liquefied natural gas (LNG) or grid-based natural gas. Against this background, we have continued to shift the focus onto due diligence measures in the area of gas procurement. The key aspect will be a comprehensive business partner audit of each of the direct LNG and pipeline gas suppliers before they are approved as a business partner for EnBW.

Origin and own consumption

In 2023, EnBW mainly sourced its natural gas via supply contracts with companies in Norway as well as via the European wholesale market. Following the expiry of our Russian gas contracts, we have been strengthening our efforts to diversify our **sources of gas** to a much greater extent. We concluded two long-term purchase agreements in 2022 for liquefied natural gas (LNG) with Venture Global LNG for a term of 20 years to diversify our sources of gas in the long term. The total volume of LNG will be around 2 million t per year, half of which will be sourced from the Plaquemines facility and half from the Calcasieu Pass 2 facility (both in the USA) of Venture Global LNG from 2026/2027 onwards. At the beginning of 2023, we increased our capacity bookings at the planned LNG terminal in Stade to 6 bcm/a to help ensure the continued security of supply in Germany.

In 2023, we acquired 7,203 GWh of natural gas for our **own consumption at EnBW** (previous year: 7,611 GWh). We use this gas for generating electricity and heat in our power plants, for heating our buildings and for operating our gas plants.

The opportunities and risks in relation to gas procurement can be found in the "Report on opportunities and risks" (p. 134 f.↗).

Exercising due diligence

We also take our responsibilities seriously in the procurement of gas and exercise human rights due diligence in our supply chain. The **business partner audit** comprises an audit with respect to both compliance and sustainability. The main focus is placed on the observance of international sustainability standards, a commitment to and compliance with guidelines on environmental protection and human rights, dialog with stakeholders and disclosure of extraction methods. Existing suppliers are reevaluated from a sustainability perspective every year as part of our recurring audits, insofar as there are no reasons to carry out an audit sooner. In order to better adapt our LNG procurement process to our sustainability requirements, we have initiated a **LNG pilot project** within the Responsible Commodity Sourcing Initiative (RECOSI). This project will check whether the continuous improvement process for the procurement of coal can also be transferred to the procurement of

Further information on the **Energy Sector Dialog** can be found here.

Online ↗

You can download the **publication from the Energy Sector Dialog** in PDF format here.

Online ↗

LNG. In 2023, we launched an **Energy Sector Dialog** in cooperation with other companies, associations, NGOs and unions, and headed by the Federal Ministry of Labour and Social Affairs. In the publication "Potential human rights risks along the supply and value chains. Selected sections of the German energy industry," the gas sector has been closely examined using this multi-stakeholder approach. The findings will flow into our risk assessment process. As part of the sector dialog, we also held a discussion with an NGO working in the gas fields in Texas, USA, to ensure that the views of those impacted are taken into account in our assessments.

Methane emissions

The European Commission, European Parliament and Council of the European Union agreed at their trialogue meeting on 15 November 2023 to reduce methane emissions in the energy sector as part of the "Fit for 55" package in a Methane Emission Regulation that is due to come into force on 1 April 2024. Operators of gas infrastructure will be obligated to measure and report their emissions and regularly check their facilities for leaks and repair them without delay. The flaring and venting of methane will be largely prohibited. The final text has not yet been published and the EU has not definitively defined or communicated all of the requirements, especially those related to detecting and repairing leaks. Some renegotiation is expected and work is already being carried out to some extent on how to transcribe the requirements into technical rules at a national level. Further interventions and clarifications by the EU will be published as required in the form of Delegated Acts or Implementing Acts over the next few years.

As previously, our grid companies will continue to regularly check their gas infrastructure for methane emissions and repair any leaks they detect without delay. We currently base our activities in this area on the requirements issued by the Oil and Gas Methane Partnership (OGMP) and will implement the new requirements for measuring and reporting emissions and for the detection and repair of leaks in accordance with the newly adopted Methane Emission Regulation and associated technical rules.

Business report

General conditions

Macroeconomic trends

Economies

In 2023, continuing high inflation and the restrictive interest rate policies introduced by the central banks in response had a marked effect on the global economy. Although it was possible to curb inflation with increases in base interest rates, and further falls in the rate of inflation are expected in 2024, high consumer prices continue to pose a challenge. Despite indications of a slowdown in the economy, the job market remains robust in light of historically low unemployment rates in the advanced economies. However, growth has slowed in emerging and developing countries. The economic slowdown in China due to the ongoing crisis in the Chinese real estate sector is symbolic of this development.

In the meantime, the tension on the energy markets continued to ease in 2023. The risks are still high despite the positive effects of the currently lower consumer prices, which nevertheless remain high, and largely intact supply chains. According to the International Monetary Fund (IMF), global gross domestic product (GDP) grew by 3.1% in 2023 (previous year: 3.5%). The IMF also forecasts global growth of 3.1% for 2024. According to the IMF, while GDP in the eurozone grew by just 0.5% in 2023, the German economy contracted by 0.3%. The economic slowdown and restraint in consumption due to the still relatively high price of electricity were clearly evident according to the energy sector association, the BDEW. Electricity consumption fell in 2023 by 3.3% compared to the previous year. In its World Economic Outlook Update in January, the IMF anticipates an increase in economic output again in 2024 and forecasts growth of 0.9% in the eurozone and growth of 0.5% for Germany. The macroeconomic environment will probably also experience huge uncertainty and volatility in 2024, which makes it difficult to make specific statements about the impact on our company's business performance.

Development of gross domestic product (GDP)

in %	2024	**2023** [1]	2022 [1]
World	3.1	**3.1**	3.5
Eurozone	0.9	**0.5**	3.4
Germany	0.5	**-0.3**	1.8
France	1.0	**0.8**	2.5
United Kingdom	0.6	**0.5**	4.3
Sweden	0.6	**-0.7**	2.8
Switzerland	1.8	**0.9**	2.7
Czech Republic	2.3	**0.2**	2.3
Turkey	3.1	**4.0**	5.5

1 The figures for the previous year have been restated.

Development of interest rates

Expectations of a global economic slowdown led to an inverted yield curve for German government bonds in 2023. Following the huge increase in interest rates in the previous year, yields on ten-year German government bonds rose significantly and at times exceeded the 3% mark. Although inflation rates have fallen, they still remain at a high level. To return inflation rates back to the target levels set by the central banks, the European Central Bank (ECB) and the US Federal Reserve (Fed) initially continued to increase key interest rates over the course of the year. While the Fed refrained from increasing interest rates any further in September 2023, the ECB also decided to pause interest rate hikes in October 2023, bringing to an end a run of ten increases in a row. In the fourth quarter, the expectations of interest rate cuts in 2024 even began to grow.

Against this background, the long end of the yield curve has started to fall and actuarial interest rates, which are used to discount the pension provisions, were below the level in the previous year on the 2023 reporting date, which led to a slight rise in the present value of the provisions.

Development of the sector and competitive situation

The energy sector is currently experiencing a period of great upheaval. There is particular pressure for change due to the energy transition. However, digitalization, sector coupling and the desire of local authorities to become self-sufficient are also having a strong influence on the sector.

A significant factor is that the energy sector is highly regulated, which means that political policies strongly influence developments. Traditional energy companies need to re-examine their competitiveness in individual business areas, exploit the potential offered by a changed market environment and realign their strategies for the future.

Selection of international, national, regional and new competitors

Established competitors

National and international
ALPIQ, EDF, EDPR, Enel, Engie, E.ON, Equinor, EVN, Fortum, Iberdrola, Ørsted, RWE, Vattenfall, Verbund

Regional
Badenova, Entega, EWE, Mainova, MVV, NErgie, SWM, Thüga

New competitors

Commodity suppliers / solution suppliers / start-ups
1komma5°, enpal, Lichtblick, NEXT Kraftwerke, Octopus Energy, ostrom, Sonnen, Thermondo, Tibber

Renewable energies
BayWa r.e., bp, Encavis, ENERTRAG, PNE Wind, Shell, theolia, TotalEnergies, wpd

E-mobility, telecommunications and broadband
1&1, Allego, Aral pulse, Deutsche Glasfaser, Deutsche Telekom, Ecotel, Fastned, Google, Ionity, Shell, Tesla, VW

Financial investors
Private equity, infrastructure and pension funds, and insurance companies

EnBW position:
- Further development from an integrated energy supplier to a sustainable and innovative infrastructure partner
- Focus on growth in renewable energies, grids and customer solutions (especially e-mobility, telecommunications and broadband)
- Active in Baden-Württemberg, Germany and selected foreign markets

Challenges:
- Increasing competition due to entry of new market participants in the core business
- New competition due to market entry of EnBW in new business fields
- Optimal positioning with respect to the regulatory environment and highly competitive market

Cross-segment framework conditions

Climate protection

The **German Climate Change Act** is being fundamentally reformed. In future, the entire German government will be responsible for the achievement of the unchanged climate protection targets for 2030 across all sectors. Responsibility will now no longer be split by sector after, in particular, the transport and building sectors were unable to reach the targets they had been set on multiple occasions. This will further increase the pressure on the energy sector to make greater efforts to compensate for shortfalls in other segments. The energy industry was able to achieve its emission targets in the past. As each individual sector will no longer be responsible for its own targets, they will not be obligated to produce an Immediate Climate Action Program if they miss a target. Instead, a Projection Report will be the central steering tool. This report will be created by a research consortium on behalf of the German Environment Agency and will forecast how emissions will develop in the period up to 2030. If projections in two successive years indicate that the climate protection targets for 2030 will be missed, the entire German government must present a multi-year program to guarantee the achievement of the targets. The Immediate Climate Action Program 2023 created using the old methodology and based on some optimistic assumptions predicts that the target will be missed by around 200 Mt CO_2eq. Some tightening of the climate policy targets will be unavoidable in the next few years and must include the transport and building sectors. In this context, the amendments to the Fuel Emissions Trading Act, which stipulate the price per certificate rising to €45 in 2024 and €55 in 2025, are welcomed.

To support the continued decarbonization of the energy sector, the Federal Ministry for Economic Affairs and Energy published the first key points with respect to the auctions that will be held as part of the **power plant strategy** in August 2023. In February 2024, an agreement was reached between the ministries involved in the process at a federal level. The government will hold a total of four auctions for new power plant capacity of up to 2.5 GW each in the form of H_2-ready gas power plants, which must be fully switched over to hydrogen between 2035 and 2040. The situation will now be subject to clarification with respect to state aid law at a European level. The government will then hold a public consultation phase with operators, manufacturers and associations. Once completed, formal authorization by the European Commission in accordance with state aid rules will still be pending. The new power plants will be integrated into a future capacity mechanism that should be introduced by 2028 at the latest. The government is aiming to reach agreement on the capacity mechanism by summer 2024. EnBW will be actively involved in this process.

The establishment of a national **hydrogen infrastructure** is another pillar of the strategy for decarbonizing the future electricity and heating supply. The framework conditions are currently being developed with the active involvement of EnBW in several draft laws that have not yet been finalized in some cases. EnBW will need hydrogen for the generation of electricity and heating from around 2030 onwards, in order to successfully implement its climate-neutrality strategy on time.

The legislative procedures for the **Solar Package** have been further delayed – the process was due to be concluded by the end of 2023 and will now probably take until at least the end of March 2024. This package should help to accelerate the expansion of photovoltaic (PV) power plants with the goal of almost tripling annual growth in PV capacity from 7.5 GW in 2022 to 22 GW in 2026. The package will also introduce measures to strengthen the European manufacturing industry in the form of so-called "resilience auctions" and rules for the expansion of onshore wind energy and the construction of power lines. The proposed legislation is being accompanied by the pact between the federal and state governments in Germany that aims to remove the bureaucratic hurdles in the areas of nature conservation, repowering and heavy haulage. It includes among other things a "Pact for Accelerating Planning, Approval and Implementation" that aims to streamline processes by updating the law, and reducing and standardizing the number of review steps in the approval procedures. The pact also envisages using digital solutions to speed up approval processes.

The German government has started a comprehensive modernization offensive with the reform of the **German Buildings Energy Act.** In combination with heat planning at a local authority level, the act should reduce the emission of greenhouse gases in the buildings sector. The Heat Planning Act came into force on 1 January 2024. The federal states must ensure that heating plans are created for large cities in their state by 30 June 2026 and for local authorities with less than 100,000 residents by 30 June 2028. The obligation to produce a heating plan is already part of the legal regulations at a state level in some states, including Baden-Württemberg. It is crucial over the next few months that the Buildings Energy Act is closely harmonized with the Heat Planning Act in order to ensure that the regulations contained in these acts can be implemented seamlessly together. EnBW welcomes the Heat Planning Act and the resulting decarbonization of the heating sector (p. 90 f.↗).

European energy policy

At an EU level, almost all of the legislative proposals in the **first part of the "Green Deal – Fit for 55" package** have now been passed by the European Council and EU Parliament, including the most important aspect from an EnBW perspective: the dossier on the revision of the EU Emissions Trading System (ETS) that will introduce a separate emissions trading system for the building and transport sector. The EU has also passed revisions of the Renewable Energy Directive, Energy Efficiency Directive, the regulation defining CO_2 emission performance standards for passenger cars and light commercial vehicles, and the regulation on the deployment of alternative fuels infrastructure. The Energy Taxation Directive is the sole piece of legislation in the first package that has only been examined by the European Council. As things currently stand, the discussions on this piece of legislation in the European Council will most probably not be concluded.

The **second part of the "Fit for 55" package,** which aims to decarbonize the gas sector, is currently at the final trialogue negotiation stage within the legislative institutions of the European Union regarding the prospective EU hydrogen regulation. Positive steps have been taken with respect to important regulation guidelines and unbundling requirements for a future hydrogen grid. These aspects are crucial for the rapid development of the grid and for connecting Baden-Württemberg to the European hydrogen infrastructure. For example, the negotiations for the EU regulation to reduce methane emissions in the energy sector were concluded in November 2023. In December 2023, the European legislators agreed on a revision of the Energy Performance of Buildings Directive. It is anticipated that this directive will still be formally adopted in the current legislative period.

High energy prices and the increasingly difficult situation surrounding the security of energy supply in Europe due to the war between Russia and Ukraine prompted the EU Commission to submit a proposal for the reform of the design of the EU electricity market to the European Council and European Parliament in March 2023. The proposed reform consists of a revision of the Regulation on Wholesale Energy Market Integrity and Transparency (REMIT) and revisions of the regulation on the internal market for electricity and the directive on common rules for the internal market for electricity. The European Council and Parliament already reached agreement on REMIT in November 2023 and agreement on the other two pieces of legislation in December. EnBW is largely neutral about the results of these reforms but is generally critical of the trend for more market interventions in the electricity market, which could have a negative impact on the electricity market overall. Looking forward to winter 2023/2024, the obligatory regulations for the management of gas storage facilities that were defined in 2022 still apply at an EU level. As a result of easing prices on the energy markets and the high fill levels at the gas storage facilities, the EU Commission is not recommending any extension to the emergency measures for the windfall profit levy in the electricity generation sector. Instead, the European Council extended the period of validity for accelerated approval processes governed by the emergency regulations, the market correction mechanism to limit excessively high gas prices and the solidarity mechanism in the gas sector. EnBW views the market correction mechanism critically because if activated it could cause upheaval on the gas market.

In order to strengthen European competitiveness and support industrial policy especially with respect to China and the USA, the EU Commission has presented its proposals for both a Net Zero Industry Act (NZIA) and a Critical Raw Materials Act (CRMA). Both dossiers aim to ensure that the **EU does not lose its competitiveness** in key technologies for the green transition and to reduce Europe's one-sided dependence on individual states for raw materials. While a final agreement on the CRMA has already been reached, the trialogue discussions on the NZIA only started in December 2023. It is anticipated that the negotiations will take place during the first half of 2024 under the Belgium presidency of the European Council. Based on the Inflation Reduction Act (IRA) in the USA, the first EU auctions were held via the EU Hydrogen Bank in November 2023 to support companies with the operating costs in the production of renewable hydrogen. With the aim of ramping up the hydrogen economy, projects for the production of hydrogen in the EU will receive total funding of €800 million over ten years. As an accompanying measure to the NZIA, the EU Commission presented a European Wind Power Action Plan on 24 October 2023 including an ambitious expansion target of 111 GW from offshore wind power by 2030. Although the proposals are not legally binding, the EU Commission nevertheless focuses more deeply on the critical issues in the sector and analyses how the domestic production of wind turbines can be made more competitive again, taking into account aspects such as high raw material prices, rising interest rates and competition from abroad. In addition, the plan contains details on how to incentivize investment, speed up approval procedures and optimize the design of auctions. EnBW does not expect any direct impact from this plan because it is legally a non-binding communication.

Smart Infrastructure for Customers segment

Electricity and gas prices for retail and industrial customers

Average electricity price for a household [1]

in ct/kWh	2023	HY2 2022	HY1 2022
Grid fees [2]	9.52	8.08	8.08
EEG cost allocations [3]	0.00	0.00	3.72
Procurement, sales	23.83	20.64	14.40
VAT	7.30	6.40	5.92
Electricity tax	2.05	2.05	2.05
Concession fees	1.66	1.66	1.66
Other allocations	1.37	1.24	1.24
Total	**45.73**	**40.07**	**37.07**

1 Annual consumption of 3,500 kWh.
2 Including metering and metering station operation. Source: BDEW | As of December 2023.
3 EEG cost allocations were reduced to zero on 01/07/2022.

14.1%

increase in **electricity costs** for a household with an annual consumption of 3,500 kWh in 2023 in comparison to the second half of 2022.

According to an analysis of electricity prices by the German Association of Energy and Water Industries (BDEW) published in December 2023, the average monthly electricity bill for a household with an annual consumption of 3,500 kWh came to €133.36 in 2023. As a result of the abolishment of the EEG cost allocations as of 1 July 2022, the BDEW published two figures for the average electricity price in 2022, one for each half of the year. The average monthly electricity bill in the first half of 2022 was €108.12, while it increased to €116.86 in the second half of 2022.

After reducing prices in 2021 and 2022 and passing on reductions as a result of the abolishment of the EEG cost allocations as of 1 July 2022, we were forced to increase **electricity prices for heating electricity** under the EnBW brand on 1 January 2023 for the first time in three years. These are special electricity tariffs for electric storage heaters and heat pumps. Basic supply tariffs increased on average by 63.4% due to the huge rises in procurement costs as a result of the war between Russia and Ukraine. In comparison to the prices before the abolishment of the EEG cost allocations on 1 July 2022, this corresponded to an increase of around 39.4% or 31.2% depending on the use of the heating electricity. Heating electricity tariffs outside of the basic supply increased by a similar amount as those within the basic supply. We were able to reduce our prices for heating electricity under the EnBW brand again with effect from 1 January 2024 and, above all, pass on the effects of lower procurement costs to our customers. Although procurement costs on the energy markets are still at a high level in comparison to prices before the start of the energy crisis in spring 2021, we have generally been able to cushion the enormous cost increases for our customers since then. Prices for the basic supply fell by 4.6% for heat pump applications and by 5.9% for electric storage heating with a separate meter. Prices for special contracts changed by similar amounts.

The **prices for household electricity** under the EnBW brand remained constant in 2023.

We will increase **electricity prices for the basic supply and reserve supplies** under the EnBW brand by 15.9% with effect from 1 April 2024. At the same time, **heating electricity prices** for electric storage heaters with a combined meter will rise by 4.5%. Tariffs outside of the basic supply and reserve supplies will also change by similar amounts. The political decisions taken in response to the Constitutional Court's ruling on the debt brake in November 2023 were the main reasons for these changes. These decisions led to a significant increase in network user charges for household electricity. At the same time, the levies, user charges and taxes that also make up part of the electricity price for households have also risen overall. Another cost factor affecting the price adjustments were extraordinarily high procurement costs, especially during the energy crisis in 2022. In order to guarantee a safe and reliable supply of energy, EnBW already purchases the volumes of energy required by its customers well in advance on the energy markets. Despite falling prices on the electricity markets, the average price is still much higher than before the energy crisis.

For **industrial customers** receiving a medium-voltage supply, the average electricity price including electricity taxes decreased significantly in 2023 to 24.86 ct/kWh according to calculations made by BDEW. Average electricity prices increased considerably in 2022 due to huge price rises on the energy markets. While the average electricity price still stood at 33.02 ct/kWh in the first half of 2022, it increased sharply in the second half of 2022 to 53.38 ct/kWh.

Average natural gas price for a household in a single-family house [1]

in ct/kWh	2023	Q4 2022	Q1–Q3 2022
Procurement, sales	9.87	15.88	10.06
Grid fees [2]	1.99	1.66	1.66
VAT [3]	0.92	1.31	2.44
Natural gas tax	0.55	0.55	0.55
CO_2 price [4]	0.54	0.55	0.55
Other duties and cost allocations	0.12	0.09	0.03
Total	**13.99**	**20.04**	**15.29**

1 Natural gas central heating with hot water provision, each set at a special customer tariff including a reduced concession fee (0.03 ct/kWh), annual consumption of 20,000 kWh, base price included on a pro rata basis, not volume-weighted.
2 Including metering and metering station operation.
3 The "law for the temporary reduction of the value added tax rate for the supply of gas via the natural gas grid" reduced the VAT rate on gas deliveries from 01/10/2022 from 19% to 7%.
4 The CO_2 price represents the cost for the acquisition of CO_2 emissions trading allowances according to the BEHG and is fixed at a price defined by law until the end of 2025. Source: BDEW | As of December 2023.

-30.2%

decrease in **natural gas prices** for a household with an annual consumption of 20,000 kWh in 2023 in comparison to the fourth quarter of the previous year.

According to calculations by the German Federal Statistical Office, **natural gas prices** for industry fell in the first half of 2023 by 4.6% in comparison to the second half of 2022. In contrast, gas prices for private households increased significantly by 31.3% in the same comparative period. According to the gas price analysis published by the BDEW in December 2023, the average natural gas price for a household in a single-family house over the whole of 2023 was 13.99 ct/kWh.

The prices for gas under the EnBW brand remained constant in 2023. We were able to lower gas prices as of 1 January 2024. This was mainly due to falling procurement costs that we were able to pass on to our customers. The price for the basic supply of gas fell by around 4.5%, while corresponding prices for special contracts changed by similar amounts.

Although procurement costs for gas on the energy markets are still at a high level in comparison to prices before the start of the energy crisis in spring 2021, EnBW has generally been able to cushion the enormous cost increases for its customers since then. As a result, the prices for the basic supply of gas under the EnBW brand are still below average compared to the overall market.

Structural changes

Following a strong year in 2022, the **home electricity storage market** continued to grow in 2023. Around 260,000 home storage system were installed in the first half of 2023 alone (previous year: 105,000). Alongside the high level of demand overall, the removal of VAT, or its reduction to 0%, on new photovoltaic and home storage systems at the beginning of 2023 also had a positive impact. According to EUPD Research, around half a million home storage systems were newly installed by the end of 2023. We support end customers in this area with our household energy solutions (for example in the area of photovoltaics and storage systems) (p. 90↗).

There also continues to be very dynamic growth in the registration of new **electric vehicles.** According to the Federal Motor Transport Authority, around 520,000 electric cars were registered in 2023, which was around 11% more battery-powered electric vehicles than in the previous year. This meant that the share of the total number of new registrations accounted for by purely electric vehicles reached 18.4%. In contrast, there was a sharp fall in the number of plug-in hybrid vehicles in 2023 – with around 176,000 newly registered vehicles – which was due to some extent to the reduction in state subsidies for this category of vehicles. In contrast, the increase in battery electric cars was the result of, among other things, the growing acceptance for these vehicles among customers and the wider choice of models available. EnBW mobility+ is ensuring there will be sufficient **charging infrastructure.** It already operates the largest quick-charging network in Germany, is investing in its further expansion and provides drivers with the opportunity to charge their vehicles throughout large areas of Europe using the EnBW mobility+ app (p. 89 f.↗). There are plans to also significantly expand the infrastructure for cars, commercial vehicles and ships with alternative drive systems at a European level. In this context, a compromise on the Alternative Fuel Infrastructure Regulation (AFIR, previously Regulation 2014/94/EU) was reached on 27 March 2023. It will especially focus on the expansion of e-charging stations. The aim is to install a charging station every 60 km across the core trans-European transport network by the end of 2025. Member states must provide additional charging capacity of 1.3 kW per newly registered electric vehicle.

A comprehensive expansion of the **broadband infrastructure** remains economically unfeasible in many regions. For this reason, future funding will now focus on "gray areas," and since 1 January 2023 has been provided for areas with a bandwidth ≤ 100 Mbit/s, thus effectively for all private customer connections that are not gigabit-ready. Total funding of €17 billion is available for the expansion of the fiber-optic infrastructure. In order to benefit from this transformation to a gigabit-ready infrastructure, Plusnet is active across Germany, while NetCom BW will focus on Baden-Württemberg (p. 91↗).

System Critical Infrastructure segment

In September 2023, the Federal Network Agency published its preliminary findings on the second draft of the **Network Development Plan Electricity 2037 with Outlook 2045.** The plan includes three scenarios describing the envisaged grid in 2037 and the "climate-neutral grid" for Germany in 2045. The plan not only factors in the phaseout of coal and nuclear energy but also the national hydrogen strategy, the highly ambitious policies for the expansion of renewable energies and an increasingly integrated internal energy market in Europe as the main drivers of the transformation of the energy system. The three scenarios reflect different degrees of hydrogen uptake and electrification. The anticipated installed generation capacities from renewable energies (above all photovoltaic and wind) in 2045 of almost 640 GW to over 700 GW would represent about a fivefold increase in comparison to 2023. This and – according to forecasts – a doubling in gross electricity consumption will require a huge increase in the rate at which the grids are currently being expanded. The expected investment in the transmission grid up to 2045 is around €156 billion in all scenarios with the expectation that the associated expansion measures will be almost completely finished by 2037. To enable the integration of offshore wind power plants, it is estimated that an additional €145 billion will have to be invested in the German offshore grid by 2045. The Federal Network Agency approved the NDP Electricity 2037 with Outlook 2045 on 1 March 2024.

TransnetBW is participating with other transmission grid operators in two major projects to push forward the development of high-voltage DC transmission lines (HVDC) for the future transport of wind energy from the north of Germany to the centers of consumption in the south. TransnetBW is responsible for the most southern section of the **ULTRANET** project that will connect North Rhine-Westphalia and Philippsburg. The Federal Network Agency (BNetzA) approved the plan for this 42 km section at the end of August 2023 and construction work on the transmission line has now begun. In the **SuedLink** project, two high-voltage DC transmission lines from Schleswig-Holstein to Bavaria and Baden-Württemberg are being realized in cooperation with TenneT. In May 2023, the BNetzA approved the plans for the first of a total of eight sections for which TransnetBW is responsible. The construction work for the SuedLink converter in Leingarten started at the end of July 2023. The other seven sections are still in the planning approval process.

The **grid companies in the EnBW Group are implementing numerous digitalization measures** which should reduce the huge need to expand the electricity grid in order to achieve the climate neutrality targets and also to optimize the processes involved in operating the grids. The Act to Relaunch the Digitalization of the Energy Transition (GNDEW) came into force at the end of May 2023 and aims to promote the flexible, legally compliant and comprehensive rollout of smart meters. Obligatory aspects include, for example, control of devices via smart meters and ensuring that several meters can be connected up to one smart meter gateway. The rollout is being significantly accelerated by current trends in photovoltaics, heat pumps and electromobility. Netze BW thus estimates that it will have more than one million smart meters in its grid area by 2030. In addition, Netze BW is currently actively engaged in innovation projects to expand the potential applications for smart meter gateways. In cooperation with E.ON, the meter manufacturer Landis+Gyr and other partners, Netze BW is, for example, pushing forward the integration of meters that record load profile measurements. It is also testing submetering for heating bills in the housing sector in cooperation with the Minol-ZENNER Group.

The rules governing the **reduction in electricity consumption at times of peak load** from the Federal Network Agency (section 14a Energy Industry Act [EnWG]) have made it possible for grid operators to reduce the power consumption of controllable consumers such as heat pumps, wall boxes and electricity storage systems from January 2024 for a maximum of two hours per day if there is an imminent threat that the electricity grid will become overloaded.

In December 2023, the **Network Development Plan (NDP) Gas 2022–2032** from the gas transmission system operators (TSO) was approved with one request for a change by the Federal Network Agency. It contains a binding expansion proposal that takes into account significant changes to the framework conditions in the gas industry. Three variants are considered for 2032 based on LNG deliveries and also allow for the complete loss of Russian gas volumes both for the supply to Germany and also for transmission through Germany. The approved grid expansion measures will require investment of around €4 billion, of which almost €2 billion will be on LNG facilities. The Federal Network Agency is currently engaged in the consultation process on the draft application from the TSO for the core hydrogen network in Germany. According to the plans, the core hydrogen network will have a length of around 9,700 km and will by 2032 largely consist of redeployed natural gas lines that will no longer be required for their original purpose by this time. The Federal Network Agency is expected to approve the core hydrogen network in the middle of 2024.

The current NDP Gas runs until 2030 and envisages increasing gas transmission capacities in Baden-Württemberg, especially for the supply of new gas power plants, which will make a needs-based expansion of the gas transmission grid of terranets bw necessary. The **south German natural gas pipeline (SEL)** will form part of the required expansion. As the first major natural gas pipeline in Baden-Württemberg to be connected to the European gas transmission routes, it will be constructed as a hydrogen-ready pipeline. As a result, the SEL pipeline will satisfy the requirements for providing the business location Baden-Württemberg with a CO_2-neutral energy supply.

Sustainable Generation Infrastructure segment

Installed net output for electricity generation from renewable energies in Germany[1]

in GW	2023	2022	2021	2020	2019
Solar	**81.8**	67.6	60.1	54.4	48.9
Onshore wind	**61.0**	58.0	55.9	54.3	53.2
Biomass	**9.0**	8.9	8.9	8.7	8.3
Offshore wind	**8.5**	8.2	7.9	7.9	7.6
Hydropower[2]	**5.4**	5.4	5.5	5.5	5.5
Gas	**34.8**	34.3	32.4	32.5	30.1
Hard coal	**18.9**	19.0	19.0	23.7	22.7
Brown coal	**18.6**	18.7	19.0	20.9	20.9
Nuclear power	**–**	4.1	4.1	8.1	9.5
Oil	**4.7**	4.7	4.7	4.9	4.4
Total[3]	**242.7**	**228.7**	**217.3**	**220.8**	**211.0**

1 The figures for the previous year have been restated.
2 Adjustment to the installed output from hydropower by EnBW. Source: Fraunhofer ISE (www.energy-charts.de) | As of: 24/01/2024.
3 The figures may not add up due to rounding differences.

Renewable Energies

Germany

The proportion of total electricity generation accounted for by renewable energies was around 55% in 2023 and thus significantly higher than in the previous year (previous year restated as a result of more precise analyses: 46%). This increase was mainly attributable to higher wind yields and a lower total generation volume in Germany.

The German Renewable Energies Act came into force at the beginning of 2023. It defines a target for the share of the gross electricity consumption accounted for by renewable energies in 2030 of at least 80%. In order to achieve this target, significant increases in the annual auction capacities and expansion volumes for renewable energies were also defined. The target values for the installed output from onshore wind power plants in 2030 and 2040 were increased to 115 GW and 160 GW, respectively, while the targets for photovoltaics in 2030 and 2040 were increased to 215 GW and 400 GW, respectively. In the case of offshore wind power, the target values were increased to 30 GW in 2030, 40 GW in 2035 and 70 GW in 2045. We believe that these developments validate our strategy of making renewable energies an important pillar of our business.

Onshore wind

In 2023, the installed onshore wind capacity in Germany increased by around 3 GW due to the commissioning of new wind farms. The targets set for reserved land areas for the federal states will have a positive impact on the expansion of onshore wind energy in the long term. The amendments on the protection of species in the Federal Nature Conservation Act will also have a positive effect.

Offshore wind

One offshore wind farm (Arcadis Ost) with an output of 257 MW was placed into operation in Germany in 2023. The auctions for non-centrally pre-investigated sites for a total of 7 GW of output started on 1 June 2023. EnBW participated in the North Sea auction in a joint venture with Equinor. EnBW was not successful with any of its bids in the second round of bidding. A "dynamic bidding procedure" was used for the first time to select the successful bids. In this procedure, the successful bidders are the ones willing to pay the highest amount with no funding in the form of a market premium. Two of the three sites in the North Sea, each with a capacity of 2 GW, were won by bp, while the third site in the North Sea, also with a capacity of 2 GW, and a site in the Baltic Sea with a capacity of 1 GW were secured by TotalEnergies. The new wind farms are expected to be commissioned in 2030.

Photovoltaics

The year 2023 recorded by far the highest expansion in solar PV capacities in history. The overall output of photovoltaic plants increased by around 14 GW due to the installation of new plants. In order to achieve the ambitious expansion targets by 2030, it will nevertheless be necessary to expand the number of useable areas considerably.

France

We are active on the French market through our subsidiary Valeco – a project developer and operator in the renewable energies sector. We develop and realize wind energy and PV projects in France and expect continued dynamic growth in this country in both generation sectors. Around 22 GW of onshore wind capacity is currently installed in France. The government's target is to expand this figure to between 33 GW and 35 GW by 2028. It also aims to expand the installed photovoltaic capacity from the current figure of 18 GW to between 35 GW and 44 GW. The French energy strategy includes ambitious expansion targets for offshore wind power. We are taking part in an auction for a floating wind farm off the coast of Brittany and are already prequalified for the next phase of auctions.

Great Britain

The British government has defined a target for the expansion of offshore wind power of 50 GW by 2030. The results of the fifth round of auctions in the CfD scheme (Contracts for Difference Allocation Round 5) were published in September 2023. No bids for offshore wind projects were accepted in this auction.

Sweden

The Swedish energy market offers favorable physical conditions and a still growing and competitive market environment for renewable energies. The further expansion of onshore wind plays an important role in the Swedish generation market. Photovoltaics are becoming an even more attractive proposition, especially in southern Sweden. It remains to be seen whether offshore wind power will also play an increasing role in the Swedish energy mix in future, both as an important source of electricity and in combination with the targets for integrating green hydrogen into the industrial and transport sectors.

Turkey

Our joint venture in Turkey with our partner Borusan operates wind turbines with a total output of 665 MW and is one of the largest players on the Turkish wind energy market. In addition, the joint venture operates a hydropower plant with an output of 50 MW and two solar parks with a total output of 9 MW. Turkey slightly increased the feed-in tariffs for new plants as part of the funding mechanism for renewable energies as of 1 May 2023. Turkey continues to have great untapped potential with respect to renewable energies, primarily in the areas of onshore wind and photovoltaics. We believe that the Turkish market remains an attractive proposition for the future, although we are monitoring the political and economic developments in Turkey very closely.

Conventional generation: market and fuel prices

Electricity wholesale market

In 2023, the average spot market price of approximately €95.18/MWh was around €140/MWh lower than in the previous year. The average price on the forward market was also significantly lower than the average price in the previous year. The fall in prices was primarily attributable to lower market prices for gas and coal. In addition, the deployment periods for thermal power plants were reduced due to higher generation from renewable energies. Electricity generation from nuclear power in France was also significantly higher than in the previous year and this had an impact on neighboring electricity markets. The future development of electricity prices will depend on the development of fuel and CO_2 prices and trends in the electricity generation mix. Future developments in energy and climate policy will also have an important influence on the electricity market in the future.

Development of prices for electricity (EPEX), base load product

in €/MWh	Average 2023	Average 2022
Spot	95.18	235.45
Rolling front year price	137.67	298.86

Gas market

In the first half of 2023, there was a significant fall in prices on the gas market. The reasons for this development were the mild winter in Europe, a drop in demand in Europe and more frequent arrivals of LNG ships in northwest Europe in comparison to the previous winter. Since June 2023, prices have risen again to some extent or experienced sideways movement. This was primarily due to extensive maintenance work in Norwegian gas production, which had to be significantly extended in some cases. In addition, there was a price-related fall in LNG deliveries to northwest Europe. Since December 2022, several LNG import terminals have been placed into operation in Germany, France and Italy and have improved the supply situation further. In the first half of 2023, LNG deliveries to northwest Europe reached new record levels. The remaining Russian gas deliveries via Ukraine and Bulgaria remained quite stable throughout the entire year. There were noticeable reductions in gas consumption in both the industrial and household sectors in comparison to the previous year, as demanded by the government in its calls to lower consumption. It is probable that the gloomy economic conditions had a negative impact on industrial demand. As a result of lower demand and a good level of supply, the gas storage facilities had relatively high fill levels at the end of the 2022/2023 winter and the feared gas shortages thus failed to materialize. The good level of supply during summer 2023 meant that the gas storage facilities in Europe were filled quickly. In addition, the mild start to the winter led to below-average demand. On 3 November 2023, the European gas storage facilities reached a fill level of 100% and were still more than 90% full on 1 January 2024. As gas use continued, storage levels fell to around 74% on 1 February 2024.

Development of prices for natural gas on the TTF (Dutch wholesale market)

in €/MWh	Average 2023	Average 2022
Spot	40.55	122.98
Rolling front year price	52.01	114.21

There is still some uncertainly with respect to the remaining Russian gas deliveries via Ukraine and Bulgaria. A halt to these supplies for political reasons is possible at any time. In addition, it is unclear what impact a Bulgarian transit tax on Russian gas may have. Large volumes of LNG will continue to be needed in northwest Europe to replace the previous volumes of Russian gas. This means that an increase in the demand for LNG in other parts of the world would now have a bigger impact on the European gas markets than in the past.

Oil market

Brent oil prices (rolling front month) experienced volatile sideways movement during the course of 2023. For large parts of the year, the main drivers of this development were economic concerns and worries about the demand for oil, while the OPEC+ group tried several times to influence prices upwards with cuts to their oil production. Brent oil prices remained relatively stable until the end of June. Additional voluntary cuts in production by Saudi Arabia and Russia significantly reduced supplies on the global oil market from July onwards. These cuts in production were originally intended to last for just one month but were then gradually extended until the end of 2023. Hope among market participants of an end to rising interest rates also had an impact. On 27 September 2023, Brent oil hit its year-high price of US$96.55/bbl. However, the euphoria among market participants weakened afterwards and prices began to fall again. The war in the Middle East led to a brief rise in oil prices again following the events on 7 October 2023. The negative price trend then continued as before.

Development of prices on the oil markets

in US$/bbl	Average 2023	Average 2022
Crude oil (Brent) front month (daily quotes)	82.19	99.17
Crude oil (Brent), rolling front year price (daily quotes)	78.06	87.19

The oil market will presumably continue to be influenced by macroeconomic developments and the balance between supply and demand. Geopolitical conflicts, such as the war between Russia and Ukraine and a possible conflict with Iran, continue to pose risks for the price of oil. Prices on the forward market reflect the expectation that prices will continue to fall slightly over time.

Coal market

Development of prices on the coal markets

in US$/t	Average 2023	Average 2022
Coal – API #2 rolling front year price	126.37	222.13
Coal – API #2 spot market price	128.52	292.08

Coal prices were initially volatile and fell during the first half of 2023. This trend was mainly due to developments in European gas and German electricity prices. It triggered an extensive fuel switch from coal to gas in Europe, which meant that the actual physical consumption of coal fell considerably behind the expected consumption figures. Coal power plant operators suddenly had a significant oversupply of coal, while at the same time there was only limited capacity for these surplus stocks. Already agreed coal deliveries had to be delayed to a later point in time, diverted to other regions of the world or sold off on the falling market. As falling prices on the natural gas and LNG markets were a worldwide phenomenon, comparable developments were also seen in other regions with fuel switch potential. However, the global demand for coal was propped up by China, which imported record amounts of steam coal in 2023. This development was mainly driven by untypically low hydropower generation, safety inspections at coal mines in the country and a dynamic increase in the demand for electricity. Very high imports into China helped to halt falling prices on the global market from June 2023 onwards. Coal prices then generally experienced sideways movement, except for a short spike in prices in response to the war in the Middle East. Coal prices were then indirectly forced upwards by the higher prices for natural gas and LNG. These rises were seen in response to fears that Iran may block the Strait of Hormuz – which is important for, among other things, deliveries of LNG from Qatar – if the war were to spread.

During the heating period, the European coal market is still expected to be strongly influenced by developments in gas prices and this has led to huge uncertainty. The situation in China will also remain relevant. The forward market is anticipating that coal prices will remain at around the current level over the coming years.

CO_2 allowances

Development of prices for emission allowances/daily quotes

in €/t CO_2	Average 2023	Average 2022
EUA – rolling front year price	85.47	81.04

In the first half of 2023, prices for CO_2 allowances experienced sideways movement between almost €80/t CO_2 and €100/t CO_2. Prices for CO_2 allowances than fell slightly in the second half of the year. The main drivers of prices for EUA certificates in 2023 were lower emissions in the electricity sector due to a fall in fuel switch costs and lower fossil-fuel-based generation, as well as high energy prices and the flagging economy in the industrial sector. As a result of further reductions in supply imposed by the market stability reserve (MSR) and the tightening of the climate target for 2030, price increases are expected in the long term.

Nuclear power

Germany decided in 2011 to phase out the use of nuclear power. EnBW immediately responded to this decision by developing a comprehensive dismantling strategy. EnBW considers the dismantling of its five nuclear power plants to be part of the energy transition and is rigorously implementing its dismantling measures. Our subsidiary EnBW Kernkraft (EnKK) is the licensed operator of the nuclear power plants and is responsible for the dismantling work.

By taking this approach, EnBW has established itself as the forerunner in the dismantling of nuclear power plants in Germany. It is the first operator whose entire own nuclear power plant park is currently being dismantled: Obrigheim since 2008, Block I in Neckarwestheim and Block 1 in Philippsburg since 2017, Block 2 in Philippsburg since 2020 and Block II in Neckarwestheim since May 2023, after the latter was still in operation until April 2023 due to the amendment to the German Atomic Power Act. The entire dismantling program complies with the guidelines laid down by the Atomic Power Act and has been fully approved for all nuclear power plants by the authorities.

The EnBW Group

Finance and strategy goal dimensions

Changes to the segment reporting

One of the Polish subsidiaries was restructured at the beginning of 2023 in order to comply with the Polish energy industry regulations. The grid business at this company was previously reported in the "Smart Infrastructure for Customers" segment but will be part of the "System Critical Infrastructure" segment from the 2023 financial year onwards. The figures for the previous year have been restated.

Results of operations

Electricity sales fall considerably, gas sales increase

Electricity sales volume (without System Critical Infrastructure)

in billion kWh	Smart Infrastructure for Customers		Sustainable Generation Infrastructure		Total (without System Critical Infrastructure)		Change in %
	2023	2022	**2023**	2022	**2023**	2022	
Retail and commercial customers (B2C)	**13.4**	14.1	**0.0**	0.0	**13.4**	14.1	-5.0
Business and industrial customers (B2B)	**20.9**	22.6	**0.0**	0.6	**20.9**	23.2	-9.9
Trade	**0.2**	0.1	**46.7**	68.5	**46.9**	68.6	-31.6
Total	**34.5**	**36.8**	**46.7**	**69.1**	**81.2**	**105.9**	**-23.3**

In the 2023 financial year, electricity sales were significantly lower than in the previous year, which was mainly due to a decrease in trading activities. Electricity sales to retail and commercial customers (B2C) were slightly lower than in the previous year due to lower average consumption by customers. Sales to business and industrial customers (B2B) decreased, primarily as a result of reduced sales activities at GVS. Sales in the trading sector fell considerably in comparison to the same period of the previous year due to a decrease in trading activities. However, their effect on the earnings potential of the company is limited.

Gas sales volume (without System Critical Infrastructure)

in billion kWh	Smart Infrastructure for Customers		Sustainable Generation Infrastructure		Total (without System Critical Infrastructure)		Change in %
	2023	2022	**2023**	2022	**2023**	2022	
Retail and commercial customers (B2C)	**13.7**	15.5	**0.0**	0.0	**13.7**	15.5	-11.6
Business and industrial customers (B2B)	**100.8**	147.5	**0.0**	0.0	**100.8**	147.5	-31.7
Trade	**2.1**	1.9	**431.0**	343.7	**433.1**	345.6	25.3
Total	**116.6**	**164.9**	**431.0**	**343.7**	**547.6**	**508.6**	**7.7**

Gas sales increased in the 2023 financial year compared to the previous year, mainly as a result of higher trading activities. Adjusted for the effects of changes in the consolidated companies, gas sales were 8.1% higher than the figure in the previous year. Gas sales to retail and commercial customers (B2C) fell due to weather conditions and lower average consumption by customers. Against the backdrop of the loss of Russian gas procurement agreements and reduced sales activities at GVS, there was a significant decrease in sales to business and industrial customers (B2B) in comparison to the previous year. In contrast, sales in the trading sector increased considerably due to expanded trading activities, including in the area of LNG.

External revenue significantly lower than previous year

External revenue by segment

in € million[1,2]	2023	2022	Change in %
Smart Infrastructure for Customers	17,249.2	18,754.5	-8.0
System Critical Infrastructure	6,327.9	6,697.4	-5.5
Sustainable Generation Infrastructure	20,832.4	30,543.2	-31.8
Other/Consolidation	21.2	7.5	–
Total	**44,430.7**	**56,002.6**	**-20.7**

1 The figures for the previous year have been restated.
2 After deduction of electricity and energy taxes.

Adjusted for the effects of the changes in the consolidated companies, external revenue was 20.5% lower than the level in the previous year. The fall in revenue was accompanied by a corresponding reduction in the cost of materials in all segments.

Smart Infrastructure for Customers: Revenue in the Smart Infrastructure for Customers segment decreased in the 2023 financial year in comparison to the previous year. Adjusted for the effects of the changes in the consolidated companies, revenue was 7.3% lower than in the previous year. The fall in revenue was mainly due to a significant decrease in sales to business and industrial customers (B2B) against the backdrop of the loss of Russian gas procurement agreements and reduced sales activities at GVS. This was offset to some extent by passing through increases in procurement prices and network user charges to customers.

System Critical Infrastructure: Revenue in the System Critical Infrastructure segment was slightly lower in 2023 than in the previous year. Adjusted for the effects of the changes in the consolidated companies, revenue was 5.6% lower than in the previous year. Income from the settlement of redispatch measures with other transmission system operators that has no impact on the result decreased. This was offset to some extent by higher income from the use of the grids, especially as a result of factoring in increased expenses for the grid reserve including the redispatch to maintain the security of supply into prices, but was not enough to fully compensate for the fall in revenue.

Sustainable Generation Infrastructure: Revenue in the Sustainable Generation Infrastructure segment fell significantly in 2023 in comparison to the previous year despite higher sales volumes for gas. This was primarily due to lower prices for trading activities. Please refer to the information on the development of electricity and gas prices on p. 61 ff.↗.

Material developments in the income statement

The decrease of €11,571.9 million in revenue in comparison to the previous year to €44,430.7 million was mainly attributable to lower sales prices in the gas sector. Against this background, the cost of materials also fell significantly in comparison to the figure in the previous year by €15,423.1 million. Personnel expenses increased by €303.4 million, primarily due to an increase in the number of employees and wage increases as part of the collective bargaining agreement. Other operating income fell by €2,840.6 million in comparison to the previous year. This was mostly a result of higher reversals of impairment losses in the previous year, especially on our conventional generation plants, lower income from derivatives and the reversal of provisions for onerous contracts in the previous year in relation to, among other things, the early termination of an electricity procurement agreement. Other operating expenses decreased by €578.0 million, which was also a result of the valuation of derivatives in comparison to the previous year. This was offset to some extent by negative effects related to the incidents at SENEC. Amortization and depreciation increased slightly by €65.0 million compared to the value in the previous year, whereby impairment losses were around the same level as in the previous year.

The investment result in the reporting year stood at €–89.2 million, which was €366.0 million lower than the figure of €276.8 million in the previous year. The main reasons for this decrease were lower income from the dedicated financial assets and higher write-downs on entities accounted for using the equity method and on investments. The financial result deteriorated in the reporting period in comparison to the previous year by €388.7 million to €–411.3 million (previous year: €–22.6 million). This development was due mainly to interest rate effects on non-current provisions. This was offset to some extent by the result from the market valuation of securities.

Overall, earnings before tax (EBT) totaled €2,840.8 million in the 2023 financial year, compared with €2,395.4 million in the previous year.

Earnings

The Group net profit/loss attributable to the shareholders of EnBW AG fell from €1,738.0 million in 2022 by €200.4 million to €1,537.6 million in the reporting period. Earnings per share amounted to €5.68 in the 2023 financial year, compared to €6.42 in the previous year.

Adjusted earnings and non-operating result

The sum of the adjusted earnings figures and non-operating figures gives the figures on the income statement. The non-operating result includes effects that cannot be predicted or cannot be directly influenced by us and as such are not relevant to the ongoing management of the company. The effects are presented and explained further in the section "Non-operating EBITDA". The business activities relevant to the ongoing management of the company are of particular importance for internal management and for the external communication of the current and future earnings potential. We use the adjusted EBITDA – earnings before the investment and financial results, income taxes and amortization, adjusted for non-operating effects – as the key reporting indicator for disclosing this information.

Adjusted EBITDA and the share of the adjusted EBITDA accounted for by the segments

TOP

Adjusted EBITDA by segment

in € million[1]	2023	2022	Change in %	Forecast 2023[2]	Adjusted forecast 2023[3]
Smart Infrastructure for Customers	239.5	498.4	-51.9	€0.4 to €0.5 billion	€0.35 to €0.45 billion
System Critical Infrastructure	1,772.0	1,057.8	67.5	€1.6 to €1.9 billion	€1.6 to €1.9 billion
Sustainable Generation Infrastructure	4,647.6	2,616.2	77.6	€2.9 to €3.2 billion	€4.3 to €4.6 billion
Other/Consolidation	-293.9	-205.3	-43.2	–	–
Total	**6,365.2**	**3,967.1**	**60.4**	**€4.7 to €5.2 billion**	**€5.9 to €6.5 billion**

1 The figures for the previous year have been restated.
2 Forecast as published in the report from 31/12/2022.
3 Adjusted forecast as published in the report on 30/09/2023.

TOP

Share of adjusted EBITDA accounted for by the segments

in %[1]	2023	2022	Forecast 2023[2]	Adjusted forecast 2023[3]
Smart Infrastructure for Customers	3.8	12.6	5 to 15	0 to 10
System Critical Infrastructure	27.8	26.7	30 to 45	20 to 35
Sustainable Generation Infrastructure	73.0	65.9	55 to 70	65 to 80
Other/Consolidation	-4.6	-5.2	–	–
Total	**100.0**	**100.0**		

1 The figures for the previous year have been restated.
2 Forecast as published in the report from 31/12/2022.
3 Adjusted forecast as published in the report on 30/09/2023.

The adjusted EBITDA for the EnBW Group increased substantially in the 2023 financial year by 60.4% in comparison to the previous year, and was thus within the adjusted forecasted range, exceeding the originally forecasted range. Adjusted for the effects of changes in the consolidated companies, the adjusted EBITDA for the EnBW Group increased by 58.4%. Please refer to the explanations in the section "Non-operating EBITDA" for further information on the restatement of the figures for the previous year.

Smart Infrastructure for Customers: The adjusted EBITDA in the Smart Infrastructure for Customers segment of €239.5 million was significantly lower than the level in the previous year and our original and adjusted forecasted ranges. Adjusted for the effects of changes in the consolidated companies, the adjusted EBITDA decreased by 56.2%. This fall in earnings and the underperformance of the adjusted forecasted range were due to negative effects in the low three-digit million euro range in the operating business at SENEC as an indirect consequence of incidents. In addition, there were negative effects of €245.6 million related to the deconsolidation of bmp greengas and the associated impairments on receivables.

System Critical Infrastructure: The adjusted EBITDA in the System Critical Infrastructure segment increased in the 2023 financial year in comparison to the previous year by 67.5% and was thus within the unchanged forecasted range. Adjusted for the effects of changes in the consolidated companies, the adjusted EBITDA increased by 67.0%. This rise in earnings was due to a substantial increase in revenue from the use of the grids as part of the higher investment in the expansion of the grids and from factoring in higher expenses for the grid reserve into prices, including redispatch to maintain the security of supply.

Sustainable Generation Infrastructure: The adjusted EBITDA in the Sustainable Generation Infrastructure segment increased considerably in 2023 in comparison to the previous year to €4,647.6 million and was thus at the upper end of the adjusted forecasted range, exceeding the originally forecasted range.

Adjusted EBITDA Sustainable Generation Infrastructure

in € million[1]	2023	2022	Change in %
Renewable Energies	1,070.9	1,107.1	-3.3
Thermal Generation and Trading	3,576.7	1,509.1	137.0
Sustainable Generation Infrastructure	4,647.6	2,616.2	77.6

1 The figures for the previous year have been restated.

In the Renewable Energies area, the adjusted EBITDA of €1,070.9 million was at almost the same level as in the previous year. The earnings performance at the run-of-river power plants and the expansion in wind farms and photovoltaic power plants had a positive effect. This was offset to some extent by falling prices for direct distribution of generated wind and photovoltaic power. In the area of Thermal Generation and Trading, the adjusted EBITDA increased sharply in 2023 in comparison to the previous year. On the one hand, the generated volumes could be sold through the trade at significantly higher prices in comparison to the previous year, while on the other hand, the reductions and cessation in gas supplies due to the war between Russia and Ukraine in the same period of the previous year had a negative effect, which now no longer applies.

Fall in the non-operating EBITDA in comparison to the previous year

Non-operating EBITDA

in € million[1]	2023	2022	Change in %
Expenses/income relating to nuclear power	-675.6	-591.6	14.2
Income from the reversal of other provisions	57.2	14.8	–
Result from disposals	-0.3	3.8	–
Additions to/Reversals of the provisions for onerous contracts relating to electricity and gas procurement agreements	-176.2	393.8	–
Income from reversals of impairment losses	120.9	1,499.1	-91.9
Restructuring	-47.8	-28.7	66.6
Valuation effects	481.5	-908.1	–
Other non-operating result	-386.6	123.0	–
Non-operating EBITDA	-626.9	506.1	–

1 The figures for the previous year have been restated.

The fall in non-operating EBITDA was primarily due to lower income from reversals of impairment losses in comparison to the previous year when there were large reversals of impairment losses on conventional generation plants. This was the result of an improvement in the profitability of coal power plants in the liquid period.

Furthermore, additions to a provision for an onerous contract in the current reporting period – mainly due to poorer medium-term income forecasts as a result of the falling electricity prices – had a negative impact on earnings. In addition, there were not only increases to provisions but also reversals of provisions for onerous contracts in the same period of the previous year. Negative effects in the mid three-digit million euro range due to the incidents at SENEC also impacted the other non-operating result.

Valuation effects arising from certain hedging transactions, which we use to hedge against price fluctuations for underlying assets such as our power plants, offset these negative effects to some extent. In contrast to the underlying assets, these hedging transactions have to be recognized at their fair value in accordance with IFRS 9. This results in temporary earnings effects that are reversed over the course of time. As the one-sided recognition of the market value of these hedging transactions does not properly reflect the economic reality, we now recognize these effects in the non-operating result starting from the first half of 2023. This had an effect of €+373.3 million in the reporting period. The figures for the previous year have been restated accordingly. The effect in the comparative period was €–681.5 million.

Considerable increase in adjusted Group net profit

Group net profit

in € million[1]		2023			2022	
	Total	Non-operating	Adjusted	Total	Non-operating	Adjusted
EBITDA	5,738.3	-626.9	6,365.2	4,473.2	506.1	3,967.1
Amortization and depreciation	-2,397.0	-710.7	-1,686.3	-2,332.0	-716.8	-1,615.2
EBIT	3,341.3	-1,337.6	4,678.9	2,141.2	-210.7	2,351.9
Investment result	-89.2	-277.8	188.6	276.8	-35.8	312.6
Financial result	-411.3	94.7	-506.0	-22.6	449.6	-472.2
EBT	2,840.8	-1,520.7	4,361.5	2,395.4	203.1	2,192.3
Income tax	-1,008.2	201.8	-1,210.0	-551.5	-63.3	-488.2
Group net profit/loss	1,832.6	-1,318.9	3,151.5	1,843.9	139.8	1,704.1
of which profit/loss shares attributable to non-controlling interests	(295.0)	(-77.0)	(372.0)	(105.9)	(-185.1)	(291.0)
of which profit/loss shares attributable to the shareholders of EnBW AG	(1,537.6)	(-1,241.9)	(2,779.5)	(1,738.0)	(324.9)	(1,413.1)

1 The figures for the previous year have been restated.

Group net profit fell slightly in comparison to the previous year. This was due to the effects within non-operating EBITDA (please refer to the section “Non-operating EBITDA” on p. 72 f.↗ for the reasons), the investment and financial results and income taxes that had a negative impact on the earnings performance, primarily as a result of the significantly higher adjusted EBITDA (please refer to the section “Adjusted EBITDA” on p. 71 f.↗ for the reasons).

The main reasons for the decrease in the investment result were lower income from the dedicated financial assets and higher write-downs on entities accounted for using the equity method and on investments.

Furthermore, the decrease in the financial result had a negative effect on the earnings performance. This development was due mainly to interest rate effects on non-current provisions. This was offset to some extent by the result from the market valuation of securities.

Adjusted income taxes change in line with the development of adjusted EBT.

We use the amended adjusted investment result to calculate the value spread. This is calculated on the basis of the adjusted investment result less the adjusted result from investments held as financial assets of €94.0 million (previous year: €226.2 million).

Financial position

Financial management

Basis and objectives

The purpose of our financial management system is to ensure that EnBW is able to meet its payment obligations at all times without restriction. In order to minimize risk, optimize costs and increase transparency, financial transactions are managed within the Group finance department as far as possible.

The liquidity management system at EnBW is based on an efficient in-house bank approach in which liquidity is combined in an EnBW cash pool. Liquidity needs are determined using a forecasting tool and compared with corresponding liquidity sources. By applying a utilization rate for liquidity, we can derive the financing needs and then implement them. We have identified almost 100 relevant liquidity drivers for the forecast. The tool combines a deterministic approach with a risk-based approach to liquidity management. Daily operational management of liquidity is secured using a one-day, seven-day, one-month and three-month assessment. We also examine the situation over a period of twelve months in our strategic financial analysis.

In the operating business, derivatives are deployed for hedging purposes only: for example, for forward contracts for electricity and primary energy source trading. This also applies for foreign exchange and interest rate derivatives. All trading activities take place within a consistent framework using risk capital on the one hand and derived limits on the other. The value at risk (VaR) is of central importance when measuring the level of risk in proprietary trading. In the reporting year, the average value at risk was €17 million.

Details on the **risk management system** can be found in the notes to the consolidated financial statements in note (26) "Accounting for financial instruments."

Interest rate risk management involves the management and monitoring of interest-sensitive assets and liabilities. All relevant interest positions at the Group are analyzed here and used to derive an interest risk strategy. The purpose is to limit the impact of fluctuations in interest rates and interest rate risks on the results of operations and net assets. Appropriate recommendations for action for managing the interest position are resolved by an interest committee. The interest committee meets regularly and can also be convened on an ad hoc basis depending on the market situation.

Currency positions resulting from operations are closed by appropriate forward exchange contracts. Currency fluctuations from operating activities do not have any major effect on our operating result. Foreign exchange risks are monitored on a case-by-case basis within the framework of the currency management system.

As part of the EnBW-wide digital transformation, the treasury IT landscape including the payment transaction system and in-house bank has been replaced. As a result, we have achieved greater automation and more stable processes, and have also implemented new and amended governance rules.

We will continue to strive to maintain a balanced financing structure, solid financial profile and thus solid investment-grade ratings. We aim to secure our long-term access to the capital markets under competitive conditions by reaching a broader base of investors using sustainable financial instruments. Furthermore, we are digitalizing the underlying information and decision-making processes by creating a centralized data structure that can be managed and viewed using new media.

EnBW manages its financial profile using the key performance indicator debt repayment potential as the most important indicator of the company's creditworthiness. The debt repayment potential describes the retained cash flow in relation to the net debt and measures the ability of EnBW to repay its debts from its current earnings potential. This target level is reviewed on a regular basis to guarantee a solid investment-grade rating. A target value of at least 12% was valid up to now. As the result of a regular review and realignment with the latest requirements issued by the rating agencies, we are increasing this target value to at least 15%.

Further explanations of our financial terms can be found in the chapter "Strategy, goals and performance management system" on p. 32 ff.↗.

Financing strategy

We manage the financing needs of our operating activities separately from the Group's pension and nuclear obligations. As part of our financing strategy, we constantly assess capital market trends with regard to the current interest rate environment and to any potentially favorable refinancing opportunities. On this basis, we decide on further financing steps.

Alongside the internal financing capability and our own funds, we have the following financing instruments at our disposal to cover the financing needs of the operating business (as of 31 December 2023):

- Debt Issuance Program (DIP), via which bonds are issued: €~8.3 billion of €10.0 billion drawn
- Subordinated bonds: €~2.5 billion
- US private placement: equivalent value of US$~850 million (translation on the pricing day)
- Promissory notes: €0.5 billion
- Bonds in Swiss francs: CHF 410 million (€443 million as of 31 December 2023)
- Commercial paper (CP) program: €~2.0 billion undrawn
- Sustainability-linked syndicated credit facility: €1.5 billion undrawn, with a term until the end of June 2027 after utilizing the second extension option for an additional year
- Committed credit lines: €~0.6 billion of €~3.9 billion drawn
- Uncommitted credit lines, which can be utilized in agreement with our banks: €~0.1 billion of €~1.7 billion drawn
- Bank loans: Two loan agreements were concluded to finance the EnBW He Dreiht offshore wind farm. The bank loan of €600 million signed with the European Investment Bank in December 2022 was drawn in March 2023. In May 2023, a bank loan of €500 million was signed with a consortium of banks and a partial amount of €250 million was drawn. The loan is being guaranteed by the Danish export credit agency EIFO.
- In addition, subsidiaries have other financing activities in the form of bank loans and promissory notes.

Credit ratings

We aim to hold solid investment-grade ratings in order to:
- ensure unrestricted access to capital markets
- offer reliable opportunities for financing partners
- be regarded as a dependable business partner in our trading activities
- achieve the lowest-possible capital costs
- implement an appropriate number of investment projects and thereby maintain the future viability of the company

Development of credit ratings – rating/outlook

	2023	2022	2021	2020	2019
Moody's	Baa1/stable	Baa1/stable	Baa1/stable	A3/negative	A3/negative
Standard & Poor's (S&P)	A-/stable	A-/negative	A-/stable	A-/stable	A-/stable

As of 31 December 2023, the creditworthiness of EnBW was rated by the rating agencies Moody's and Standard & Poor's with "Baa1" and "A-," respectively. The rating outlook is stable in both cases.

In spring 2023, S&P raised the outlook to stable and gave recognition, in particular, to how EnBW had managed the financial impact of the war between Russia and Ukraine on its subsidiary VNG.

The EnBW credit rating from Moody's has been unchanged at Baa1/stable since 2021. The rating agency also recently published a detailed credit update for EnBW on 10 January 2024.

In general, both rating agencies have praised the company's solid financial basis and its balanced, integrated portfolio with a high proportion of regulated income. EnBW continues to have one of the strongest credit ratings among energy supply companies in Europe.

Assessment by the rating agencies

Moody's (10/01/2024)	Standard & Poor's (15/11/2023)
• Leadership position as vertically integrated utility within Baden-Württemberg • High share of regulated earnings under a reliable regulatory framework • Growing share of renewable assets increases resource risk, but mostly backed by subsidies or power purchase agreements • Track record of measures to defend credit quality and supportive stance of shareholders • Large capital spending programme, which will constrain credit metrics and entails some execution risks • Dynamic evolution of decarbonisation policies, which increases strain on conventional generation • Coal phase-out target brought forward to 2028	• Diversified and integrated position throughout the energy supply chain, which has demonstrated its resilience across different economic and geopolitical cycles • High share of regulated EBITDA and expanding share of renewable generation provides stability and predictability to earnings and cash flow • Investment strategy with focus on regulated infrastructure and renewable capacity deployment carries low execution risk and provides a long-term earnings base • Financial policy, including shareholder support, geared toward protecting the "A-" rating • Heavier carbon footprint in the short term than planned because of supply security issues, which nevertheless is profitable • Increasing share of minority stakes as EnBW divests stakes in certain projects and subsidiaries carrying proportionally less debt, which increases cash flow leakage

Sustainability ratings

We maintain close contact with leading sustainability rating agencies and take their analyses and evaluations of the corporate strategy, company situation and business prospects into account in our decision-making process. In the selection of agencies, the main focus is placed on, among other things, transparent and plausible evaluations and efficient working processes between the rating agencies, companies, investors and sustainability analysts. We strive to continuously improve our ratings from recognized agencies in the area of sustainability. We thus aim to strengthen our position as a responsible and sustainable company and also want to address those financial investors whose investment decisions are based wholly or partially on sustainability criteria.

Further information on **sustainability ratings** can be found on our website.

Online ↗

Latest sustainability ratings

	CDP Climate Change	ISS ESG	MSCI	Sustainalytics
Result	A-/Leadership (2023)	B/Prime Status (2023)	A/Average (2023)	30.2/High Risk (2023)
Scale	A to D-	A+ to D-	AAA to CCC	0 to 40+
Relative position	"Thermal power generation" sector: EnBW achieved an above-average result.	"Multi utilities" sector: EnBW rated in the top 10%.	"Utilities" sector: EnBW has an average rating.	"Utilities" sector worldwide: EnBW achieved an average result.
Rating focus	Climate protection	Environmental, social and governance aspects	Environmental, social and governance aspects	Environmental, social and governance aspects

In 2023, we received good scores in important sustainability ratings within the energy sector. In the CDP Climate Change rating, we were able to improve our score in 2023 from B (Management) to A- (Leadership) and thus achieve an above-average result in comparison to the rest of the sector (scale: A/A- Leadership, B/B- Management, C/C- Awareness, D/D- Disclosure). In the Sustainalytics rating, our score was downgraded to 30.2 in December 2023. This meant that we have just fallen into the "High Risk" category (scale: 0–10 Negligible, 10–20 Low, 20–30 Medium, 30–40 High, 40+ Severe). The scores from the other sustainability ratings were at the same level as in the previous year.

Further information on the non-financial key performance indicators can be found on p. 87 ff.↗.

Capital market activities

We have sufficient and flexible access to the capital market at all times. The EnBW bonds continue to have a well-balanced maturity profile. As part of our financing strategy, we constantly assess capital market trends with regard to the current interest rate environment and to any potentially favorable refinancing opportunities.

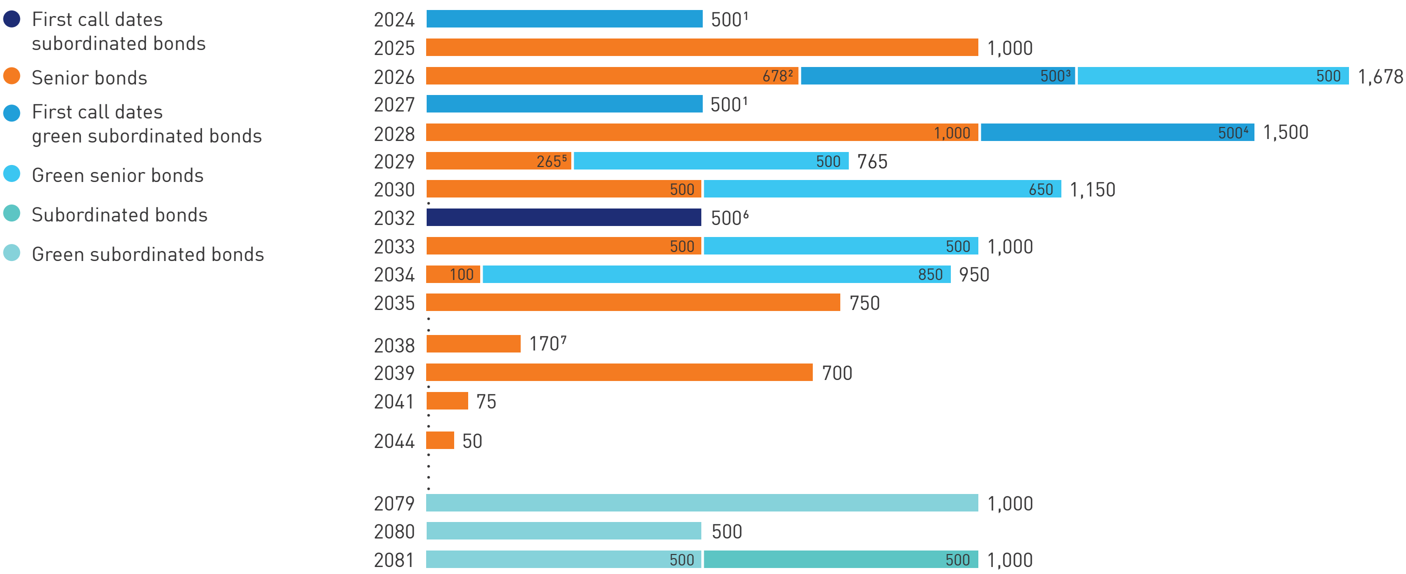
To implement our sustainable corporate strategy, we use green bonds as a sustainable financing instrument. As of 31 December 2023, we have issued green bonds with a total volume of €5 billion since 2018. We issued a green subordinated bond with a volume of €500 million on 23 January 2024. All of the green bonds are exclusively used to finance climate-friendly projects and fulfill the criteria for certification by the Climate Bonds Standard Board on behalf of the Climate Bonds Initiative.

On 17 January 2023, EnBW successfully issued two bonds with a total volume of €1.25 billion. The proceeds from the bonds will be used for implementing aspects of the company's strategy that focus on sustainability.

On 24 May 2023, EnBW issued two bonds with a total volume of 410 million Swiss francs. These bonds were issued to refinance a bond in Swiss francs from 2013 and also serve to finance and hedge EnBW's activities in Switzerland.

On 16 November 2023, EnBW issued two green corporate bonds with a total volume of €1.5 billion. These were already issued to prefinance investment in the 2024 financial year. The funds will be exclusively used to finance or refinance climate-friendly projects.

Maturity profile of EnBW bonds (as of 31 December 2023)
in € million



1 First call date: green subordinated bond maturing in 2079.
2 Includes CHF 165 million, converted into € as of 31/12/2023.
3 First call date: green subordinated bond maturing in 2080.
4 First call date: green subordinated bond maturing in 2081.
5 CHF 245 million, converted into € as of 31/12/2023.
6 First call date: subordinated bond maturing in 2081.
7 JPY 20 billion (swap in €), coupon before swap 5.460%.

Asset liability management model

We ensure the timely coverage of the pension and nuclear obligations using our asset liability management model.

The aim is to cover the Group's pension and nuclear provisions within an economically feasible period of time by means of appropriate financial assets. We ensure this using our cash flow-based asset liability management model. For this purpose, we determine the effects on the cash flow statement, income statement and balance sheet over the next 30 years. Alongside the anticipated return on financial assets, actuarial reports on pension provisions and sector-specific appraisals by external experts on costs for nuclear decommissioning and disposal are taken into account. The impact the utilization of the pension and nuclear obligations may have on the operating business is limited by taking funds from the financial assets. In the 2023 financial year, the impact on the cash flow from operating activities was around €375 million. As soon as the provisions are fully covered by the financial assets, no further funds will be taken from the cash flow from operating activities as part of the model. This model also allows simulations of various alternative scenarios.

As of 31 December 2023, the dedicated financial assets for pension and nuclear provisions totaled around €6.2 billion (previous year: €6.0 billion). Alongside the dedicated financial assets, there are plan assets to cover certain pension obligations with a market value (excluding the surplus cover from benefit entitlements) of €700.3 million as of 31 December 2023 (previous year: €714.2 million).

We strive to reach the defined investment targets with minimum risk. We also further optimized the risk/return profile of the financial assets in 2023. The main part of the dedicated financial assets is distributed as investments across nine asset classes. The financial assets are bundled in two master funds with the following investment targets:

- Risk-optimized investments, with a performance in line with market trends
- Consideration of the effects on the balance sheet and income statement
- Broad diversification of the asset classes
- Reduction of costs and simplification of administrative processes
- Consideration of sustainability aspects

The asset management department at EnBW is responsible for the sustainable alignment of medium- to long-term capital investments. It already began to rethink and sustainably realign the investment philosophy a number of years ago. This is why we take ESG criteria into account in our investment decisions. Our considerations in this regard thus focus on improving climate protection and good corporate management with respect to themes such as reputation, fraud and corruption.

As an institutional investor, we can already demonstrate today that a significant proportion of our investment is impact investment. The requirements for classification were included in the investment guidelines in accordance with article 8 of the EU Disclosure Regulation 2019/2088 for the majority of the capital investments. The solutions implemented as part of our digitalization strategy are also supporting us on this path. We have already been able, for example, to verifiably reduce CO_2 emissions and improve other ESG performance indicators in our portfolio. In the future, we plan to make our medium- to long-term capital investments CO_2 neutral – just like EnBW itself.

Net debt

As of 31 December 2023, net debt had risen by €856.1 million compared to the figure posted at the end of 2022. The increase in net financial debt in comparison to that reporting date was mainly due to the increase in collateral. The increase in net debt relating to pension and nuclear obligations resulted primarily from the decrease in the interest rate for the pension provisions.

Net debt

in € million[1]	31/12/2023	31/12/2022	Change in %
Cash and cash equivalents available to the operating business	-5,632.4	-4,626.1	21.8
Current financial assets available to the operating business	-2,941.7	-600.4	–
Long-term securities available to the operating business	-4.8	-2.4	100.0
Bonds	12,035.3	9,683.8	24.3
Liabilities to banks	3,157.4	1,969.4	60.3
Other financial liabilities	1,275.1	1,238.0	3.0
Lease liabilities	986.4	912.6	8.1
Valuation effects from interest-induced hedging transactions	-25.0	-51.0	-51.0
Restatement of 50% of the nominal amount of the subordinated bonds[2]	-1,250.0	-1,250.0	0.0
Other	-42.1	-59.7	-29.5
Net financial debt	**7,558.2**	**7,214.2**	**4.8**
Provisions for pensions and similar obligations[3]	6,030.6	5,426.0	11.1
Provisions relating to nuclear power	4,768.4	4,614.4	3.3
Receivables relating to nuclear obligations	-414.4	-372.9	11.1
Net pension and nuclear obligations	**10,384.6**	**9,667.5**	**7.4**
Long-term securities and loans to cover the pension and nuclear obligations[4]	-5,829.5	-5,642.1	3.3
Cash and cash equivalents to cover the pension and nuclear obligations	-171.7	-185.0	-7.2
Current financial assets to cover the pension and nuclear obligations	-90.2	-75.7	19.2
Surplus cover from benefit entitlements	-113.9	-106.0	7.5
Other	-34.4	-25.9	32.8
Dedicated financial assets	**-6,239.7**	**-6,034.7**	**3.4**
Net debt relating to pension and nuclear obligations	**4,144.9**	**3,632.8**	**14.1**
Net debt	**11,703.1**	**10,847.0**	**7.9**

1 The restricted liquid assets in the EEG account and Heat and Power Co-Generation Act (KWKG) account, which are only held in custody by the transmission grid operator, cannot be used for the operating business and are thus not allocated to net debt but rather to capital employed.
2 The structural characteristics of our subordinated bonds meet the criteria for half of each bond to be classified as equity, and half as debt, by the rating agencies Moody's and Standard & Poor's.
3 Less the market value of the plan assets (excluding the surplus cover from benefit entitlements) of €700.3 million (31/12/2022: €714.2 million).
4 Includes equity investments held as financial assets.

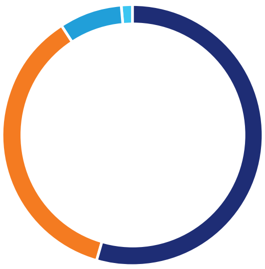
Investment analysis

Net cash investment

in € million [1]	2023	2022	Change in %
Investments in growth projects [2]	3,917.2	2,355.6	66.3
Investments in existing projects	985.4	797.8	23.5
Total investments	**4,902.6**	**3,153.5**	**55.5**
Divestitures	-13.3	-68.3	-80.5
Participation models [3]	-1,976.3	-152.6	–
Disposals of long-term loans	-18.0	-0.6	–
Other disposals and subsidies	-155.2	-164.3	-5.5
Total divestitures	**-2,162.8**	**-385.8**	**–**
Net cash investment	**2,739.8**	**2,767.7**	**-1.0**

1 Excluding investments held as financial assets.
2 Does not include cash and cash equivalents acquired with the acquisition of fully consolidated companies. These amounted to €28.5 million in the reporting period (previous year: €0.0 million).
3 This includes capital reductions in non-controlling interests with short-term receivables to foreign companies. The latter was due to advance payments made in the previous year as a result of contractual regulations.

Investment by segment
in % [1]



- 54.5 System Critical Infrastructure (2022: 60.5)
- 36.4 Sustainable Generation Infrastructure (2022: 27.3)
- 7.8 Smart Infrastructure for Customers (2022: 10.5)
- 1.3 Other (2022: 1.7)

1 The figures for the previous year have been restated.

Gross investment by the EnBW Group of €4,902.6 million in 2023 was around 56% higher than the level in the previous year (€3,153.5 million). 79.9% of overall gross investment was attributable to growth projects; the proportion of investment in existing facilities stood at 20.1%.

Gross investment in the **Smart Infrastructure for Customers** segment stood at €383.0 million and exceeded the level in the previous year (previous year restated: €331.4 million). As in the previous year, the investment in this segment was largely in the area of electromobility.

Gross investment in the **System Critical Infrastructure** segment of €2,671.9 million was significantly higher than the level in the previous year of €1,908.1 million (figure for previous year restated). This increase was primarily the result of higher investment by our subsidiary TransnetBW as part of the Network Development Plan Electricity and higher investment by our grid companies in the expansion of capacities and the renewal of the distribution grid.

There was gross investment of €1,783.5 million in the **Sustainable Generation Infrastructure** segment, which was a considerable increase in comparison to the previous year (€859.6 million).

Investments in Sustainable Generation Infrastructure

in %	2023	2022
Renewable Energies	24.0	20.0
Thermal Generation and Trading	12.4	7.3
Sustainable Generation Infrastructure	**36.4**	**27.3**

A total of €1,174.2 million of this investment was in the Renewable Energies area, compared to €631.7 million in the previous year. This significant increase was mostly attributable to the offshore wind sector due to the investment in our EnBW He Dreiht wind farm in the German North Sea. Investment in the Thermal Generation and Trading area stood at €609.3 million and was thus considerably higher than the level in the previous year of €227.9 million. This was largely due to our investment in fuel switch projects for converting three of our thermal power plants in Baden-Württemberg from coal to gas (also making them hydrogen-ready in the process).

Other gross investment increased slightly from €54.4 million in the previous year to €64.2 million and mainly involved capital contributions at other investments and investment in the central IT system.

Total **divestitures** were significantly higher overall than in the previous year. The item "divestitures" was lower than the level in the previous year when it included the impact of our exit from the offshore wind power business in the USA. Under participation models, divestitures mainly comprised the sale of our minority shareholdings in our subsidiary TransnetBW and our EnBW He Dreiht offshore wind farm. In the previous year, they mainly comprised the sale of minority shares in our solar portfolio. Other disposals were slightly below the level in the previous year.

We also take climate goals into account in our investment decisions. Significant investment projects undergo additional steps to evaluate their sustainability. This additional information flows into the approval processes carried out by the investment committee and Board of Management (p. 36↗).

Liquidity analysis

Condensed cash flow statement

in € million	2023	2022	Change in %
Cash flow from operating activities	899.7	1,804.8	-50.1
Cash flow from investing activities	-5,797.0	-2,734.9	112.0
Cash flow from financing activities	4,419.3	734.6	–
Net change in cash and cash equivalents	**-478.0**	**-195.5**	**144.5**
Change in cash and cash equivalents due to changes in the consolidated companies	6.4	0.3	–
Net foreign exchange difference and other changes in cash and cash equivalents [1]	-8.9	17.7	–
Change in cash and cash equivalents	**-480.5**	**-177.5**	**–**

1 The figures for the previous year have been restated due to the aggregation of line items.

Despite a substantial increase in cash-relevant EBITDA in comparison to the previous year, cash flow from operating activities was significantly lower than in the previous year. This development was mainly due to an outflow of cash in the net current assets for reasons related to the reporting date. This was primarily attributable to a sharp decrease in trade payables in comparison to the same period of the previous year when there was an significant increase in trade payables. In contrast, lower cash outflows in inventories in comparison to the previous year had a positive impact on the net current assets. Higher income tax paid in comparison to the previous year also had a negative impact on the cash flow from operating activities in the reporting period.

Cash flow from investing activities returned a significantly higher outflow of cash in the reporting period compared to the previous year. The main reason for this development was higher capital expenditure on property, plant and equipment, especially in the System Critical Infrastructure and Sustainable Generation Infrastructure segments. Cash flow from investing activities was also impacted by higher net investment as part of the portfolio management of securities and financial investments.

Cash flow from financing activities returned a considerably higher cash inflow than in the previous year. This was primarily due to the higher net increase in financial liabilities as part of liquidity management, mainly as a result of issuing bonds, and an increase in cash received for changes in ownership interest without loss of control. In the reporting year, this was attributable to investments by partners in the EnBW He Dreiht offshore wind farm and the transmission grid operator TransnetBW. In the previous year, the company sold shares in a solar portfolio. An increase in cash inflow for alterations of capital in non-controlling interests also had an impact.

The solvency of the EnBW Group was ensured as of the reporting date thanks to the company's internal financing capability and the external sources available for financing. The company's future solvency is secured by its solid financial position and results of operations.

Retained cash flow

in € million[1]	2023	2022	Change in %
EBITDA	**5,738.3**	**4,473.2**	**28.3**
Change in provisions excluding obligations from emission allowances	203.9	36.2	–
Non-operating valuation effects from derivatives[2]	-481.5	908.1	–
Other non-cash-relevant expenses/income[2]	735.2	-1,478.3	–
Income tax paid	-906.7	-227.9	–
Interest and dividends received	529.8	427.0	24.1
Interest paid for financing activities	-421.2	-318.8	32.1
Dedicated financial assets contribution	104.9	-92.2	–
Funds from operations (FFO)	**5,502.7**	**3,727.3**	**47.6**
Declared dividends	-671.3	-510.8	31.4
Retained cash flow	**4,831.5**	**3,216.5**	**50.2**

1 The figures for the previous year have been restated.
2 The non-operating valuation effects from derivatives contain effects on the cash flow statement of €-108.2 million (previous year: €226.6 million) in the item "Other non-cash-relevant expenses/income". Other non-cash-relevant expenses/income included in the calculation of the retained cash flow were adjusted by the corresponding amount.

Valuation effects due to temporary fluctuations in the value of certain derivatives are recognized in non-operating EBITDA and are included in the item EBITDA in the cash flow statement. These effects cannot be taken into account when calculating the operational earnings power of EnBW. Funds from operations (FFO) and retained cash flow have thus been adjusted for the described effects since the reporting for the first half of 2023. These effects totaled €–373.3 million in the reporting period. The figures for the previous year have been restated accordingly. The effect in in the comparative period was €681.5 million.

Funds from operations (FFO) were higher than in the previous year, mainly as a result of higher EBITDA. There was also a higher balance of non-cash-relevant expenses and income. This was primarily caused by valuation effects on inventories and their associated derivatives in the reporting year and higher reversals of impairment losses on property, plant and equipment in the previous year. In the reporting year, these developments were offset above all by the non-operating valuation effects from derivatives and higher income tax paid.

Higher declared dividends in comparison to the previous year reduced the retained cash flow. Nevertheless, the retained cash flow was still considerably higher than in the previous year because of the positive contribution of the FFO. It is an expression of the internal financing capability of EnBW and reflects the funds that are available to the company for investment – after all stakeholder claims have been settled – without the need to raise additional debt.

Adjusted working capital

in € million[1]	2023	2022	Change in %
Change in assets and liabilities from operating activities	**-4,762.8**	**-1,224.9**	**–**
Change in liquid assets in the EEG and the KWKG account	2,098.5	-724.2	–
Non-operating valuation effects from derivatives	373.3	-681.5	–
Adjusted change in operating assets and liabilities	**-2,291.0**	**-2,630.6**	**-12.9**
Net balance of inventories and obligations from emission allowances	(-398.9)	(-2,624.8)	(-84.8)
Net balance of trade receivables and payables, services not yet invoiced and payments on account that have been made and received	(-1,053.7)	(1,868.0)	–
Net balance of other assets and liabilities	(-838.4)	(-1,873.8)	(-55.3)

1 The table shows the reconciliation of the cash-relevant change in adjusted working capital.

Alongside the retained cash flow and net investment, the change in working capital has a major influence on net debt. As the liquid assets in the EEG account and Heat and Power Co-Generation Act (KWKG) account are only held in custody by the transmission grid operators, they are not included in the calculation of net debt. Therefore, the adjusted working capital is corrected for any changes in the liquid assets in the EEG account and KWKG account.

The change in liquid assets for received and deposited collateral relating to non-operating valuation effects which arise due to temporary fluctuations in the value of derivatives is not a component of the retained cash flow but nevertheless has an influence on net debt. The adjusted working capital is corrected to properly take the change in liquid assets into account.

TOP

Debt repayment potential

in € million[1]	2023	2022	Change in %
Retained cash flow	4,831.5	3,216.5	50.2
Net debt	11,703.1	10,847.0	7.9
Debt repayment potential in %	**41.3**	**29.7**	**–**

1 The figures for the previous year have been restated.

An adjustment to the comparative figure for retained cash flow in the previous year of €681.5 million to take account of corrections for valuation effects on certain derivatives led to an adjustment in the debt repayment potential as of 31 December 2022. As a result, this performance indicator increased for the previous year by 6.3 percentage points.

In the reporting year, the retained cash flow was higher than the forecasted range of €2.5 billion to €3.0 billion, mainly due to the increase in cash-relevant EBITDA. As a result of the increase in retained cash flow, the debt repayment potential was substantially higher than the target value of between 18.0% and 21.0% in the 2023 reporting year.

Net assets

Condensed balance sheet

in € million	31/12/2023	31/12/2022	Change in %
Non-current assets	39,512.0	36,984.0	6.8
Current assets	25,206.9	32,511.9	-22.5
Assets held for sale	0.0	7.8	-100.0
Assets	**64,718.9**	**69,503.7**	**-6.9**
Equity	15,853.0	12,769.3	24.1
Non-current liabilities	30,712.7	28,064.5	9.4
Current liabilities	18,153.2	28,669.9	-36.7
Equity and liabilities	**64,718.9**	**69,503.7**	**-6.9**

As of 31 December 2023, total assets were €4,784.8 million lower than the figure at the end of the previous year. Non-current assets increased by €2,528.0 million between the two reporting dates, which was mainly due to higher capital expenditure on property, plant and equipment. This was offset to some extent by the decrease in other non-current assets caused by a fall in derivatives. Current assets decreased by €7,305.0 million. This was also primarily due to the decrease in derivatives as a result of the slight fall in prices on the energy trading markets. There was also a decrease in inventories. In contrast, there was an increase in financial assets.

As of 31 December 2023, equity increased by €3,083.7 million as a result of the high Group net profit. This was offset to some extent by the fall in other comprehensive income, which was mainly due to the reduction in the cash flow hedge reserve. The equity ratio increased from 18.4% to 24.5% between the two reporting dates. Non-current liabilities rose by €2,648.2 million. This was primarily attributable to the issuing of bonds. Non-current provisions also increased, largely caused by the fall in the discount rate for the pension provisions from 3.7% at the end of 2022 to 3.15% as of the reporting date in 2023. This was offset to some extent by the decrease in derivatives. Current liabilities fell by €10,516.7 million. This was mainly due to a significant decrease in derivatives and collateral received. In addition, there was a substantial decrease in trade payables in comparison to the previous year.

TOP

Value spread

Value spread is calculated by deducting the weighted average cost of capital before tax (WACC) from ROCE. The cost of capital before tax represents the minimum return on average capital employed (calculated on the basis of the respective quarterly figures for the reporting year and the year-end figure for the previous year). A positive value spread is achieved when the return on capital employed (ROCE) exceeds the cost of capital. The cost of capital is determined based on the weighted average cost of equity and debt together. The value of equity is based here on a market valuation and thus deviates from the value recognized in the balance sheet. The cost of equity is based on the return of a risk-free investment and a company-specific risk premium. The latter is calculated as the difference between a risk-free investment and the return for the overall market, weighted with a company-specific business field risk. The terms according to which the EnBW Group can raise long-term debt are used to determine the cost of debt.

Value spread by segment 2023

	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result [1] in € million	76.0	1,148.0	3,950.3	-360.8	**4,813.5**
Average capital employed in € million	1,802.6	13,336.7	11,571.0	599.7	**27,310.0**
ROCE in %	**4.2**	**8.6**	**34.1**	**–**	**17.6**
Weighted average cost of capital before tax in %	10.0	6.3	8.3	–	**7.4**
Value spread in %	**-5.8**	**2.3**	**25.8**	**–**	**10.2**

1 Amended adjusted investment result of €94.6 million, adjusted for taxes (investment result/0.703 - investment result; with 0.703 = 1 - tax rate 29.7%).

Value spread by segment 2022 [1]

	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result [2] in € million	345.0	432.4	1,960.8	-263.4	**2,474.8**
Average capital employed in € million	1,514.3	12,410.9	8,178.4	586.9	**22,690.5**
ROCE in %	**22.8**	**3.5**	**24.0**	**–**	**10.9**
Weighted average cost of capital before tax in %	9.2	6.2	7.3	–	**6.8**
Value spread in %	**13.6**	**-2.7**	**16.7**	**–**	**4.1**

1 The figures for the previous year have been restated.
2 Amended adjusted investment result of €86.4 million, adjusted for taxes (investment result/0.703 - investment result; with 0.703 = 1 - tax rate 29.7%).

There are various factors that influence value spread. ROCE and value spread depend not only on the development of the operating result but above all on the capital employed. Large-scale investments tend to significantly increase the capital employed in the early years, while the effect on income that boosts value, however, only filters through over a lengthier period of time, often long after the investments were initially made. This is especially true of capital expenditure on property, plant and equipment relating to the construction of new power plants, which do not have any positive effect on the operating result of the Group until after they are commissioned. Capital expenditure on power plants, on the other hand, is already taken into account in the capital employed during the construction phase. In a comparison of individual years, the development of ROCE and value spread is, to a certain extent, cyclical in nature, depending on the investment volume.

In the 2023 financial year, the value spread rose in comparison to the previous year to 10.2% and thus exceeded our expectations for the 2023 financial year (forecast for 2023: 2.5% to 3.5%). The reason for this development was the increase in ROCE. The considerable increase in adjusted EBIT including the adjusted investment result in comparison to the previous year more than compensated for the increase in capital employed, whereby ROCE increased by 6.7 percentage points to 17.6%. The risk-adjusted weighted average cost of capital rose in comparison to the previous year to 7.4%.

Smart Infrastructure for Customers: The value spread in the Smart Infrastructure for Customers segment decreased by 19.4 percentage points in 2023 compared to 2022. This was due to the significant decrease in adjusted EBIT including the adjusted investment result. At the same time, the average capital employed was higher than the level in the previous year, which was mainly attributable to investment in the charging infrastructure.

System Critical Infrastructure: The value spread in the System Critical Infrastructure segment increased by 5.0 percentage points in comparison to 2022. The adjusted EBIT including the adjusted investment result was €715.6 million higher than the figure in the previous year. This compensated for the effects of the increase in capital employed due to investment above all in the transmission and distribution grids and the slight increase in risk-adjusted weighted average cost of capital to 6.3% in comparison to the previous year.

Sustainable Generation Infrastructure: The value spread in the Sustainable Generation Infrastructure segment was 25.8%, which was 9.1 percentage points higher than the value in the previous year. Adjusted EBIT including the adjusted investment result increased to €4.0 billion. The increase in capital employed was mainly due to the decrease in liabilities from stock market securities.

The **remuneration report** is available as a separate report on our website.

Online ↗

Performance indicators relevant to remuneration

The performance indicators relevant to remuneration are derived as follows:

EBT relevant to remuneration

in € million[1]	2023	2022
EBT	**2,840.8**	**2,395.4**
Less outstanding items for derivatives allocated under trading within EBITDA	-481.5	908.1
Less the measurement of financial assets and outstanding items for derivatives allocated under trading within the financial result	-16.1	199.5
Less changes to the inflation rate and discount rate for nuclear provisions	-202.9	-418.0
EBT relevant to remuneration	**2,140.3**	**3,085.0**

1 The figures for the previous year have been restated.

Funds from operations (FFO) relevant to remuneration

in € million[1]	2023	2022
Funds from operations (FFO)	**5,502.7**	**3,727.3**
Less income tax paid	906.7	227.9
Funds from operations (FFO) relevant to remuneration	**6,409.4**	**3,955.2**

1 The figures for the previous year have been restated.

Intangible assets and property, plant and equipment (net) relevant to remuneration

in € million	2023	2022
Intangible assets	3,166.2	3,218.2
Property, plant and equipment	25,429.8	22,705.3
Investment properties	38.3	40.1
Investment cost subsidies	-9.5	-8.8
Construction cost subsidies	-1,020.0	-991.8
Intangible assets and property, plant and equipment (net)	**27,604.8**	**24,963.0**
Average intangible assets and property, plant and equipment (net)[1]	**25,876.6**	**23,520.3**

1 Average calculation based on the relevant quarterly values for the reporting year and the year-end value for the previous year.

ROA (return on assets) relevant to remuneration

in € million[1]	2023	2022
EBIT	**3,341.3**	**2,141.2**
Less outstanding items for derivatives allocated under trading within EBITDA	-481.5	908.1
Less changes to the inflation rate and discount rate for nuclear provisions	-64.1	169.9
EBIT relevant to remuneration	**2,795.7**	**3,219.2**
Average intangible assets and property, plant and equipment (net)	25,876.6	23,520.3
ROA (return on assets) relevant to remuneration in %	**10.8**	**13.7**

1 The figures for the previous year have been restated.

Other performance indicators relevant to remuneration

	2023	2022
Expansion of renewable energies (electrical output in MW)	283.8	344.6
LTIF for companies controlled by the Group	2.4	2.6

The **LTIF** is explained in the LTIF section and the **expansion of renewable energies** is explained in the section on the environmental goal dimension in this chapter.

The remuneration of the members of the Board of Management is described in full in the **remuneration report,** which is available as a separate report at www.enbw.com/corporate-governance.

Customers and society goal dimension

Reputation

A strong reputation is an important factor for the sustainable success of a company. The good social reputation of a company reflects the trust placed by the general public and relevant stakeholders in the competent and responsible actions of that company.

We assume our responsibilities for the economy and society and aspire to be a driver of the energy transition. In the process, we want to gain social acceptance and improve our reputation. A good reputation signals the willingness of society and its different stakeholder groups to cooperate with and invest in the company.

We aim to continuously improve our reputation. A stakeholder team comprising representatives from all important areas of the company communicates and maintains regular dialog with relevant stakeholder groups both directly and indirectly (p. 42 ff.↗).

Reputation Index

Reputation is measured using the key performance indicator Reputation Index using a standardized survey that is carried out by an external market research institute. It is measured in accordance with the requirements of the EnBW Group standard for market research and surveys (p. 33 f.↗).

TOP

Key performance indicator

	2023	2022	Change in %	Forecast 2023
Reputation Index	55	58	-5.2	57 – 60

The Reputation Index fell in 2023 by three index points in comparison to the previous year. It is thus once again at the same level as in 2021, although below our forecasted range for 2023 of between 57 and 60 points. The reason for this was that values decreased in the decision-maker target groups. There was also a slight adjustment to the composition of one of the decision-maker target groups: The level of awareness for EnBW in this group is lower. We assume that the index was negatively influenced by the effects experienced throughout the industry, whereby there was an increase in reputation indices across the sector in 2022, possibly due to the war between Russia and Ukraine. This effect fell away in the reporting year.

More details on reputational risks can be found in the “Report on opportunities and risks” on p. 135↗.

Customer proximity

You can find our **company website** here.

Online ↗

In 2023, **digitalization** became even more important for our end-customer business both with respect to electricity and gas sales and also e-mobility. The main focus shifted here from customer acquisition via digital channels to digital customer communication and increasingly covers the provision of digital services for existing customers. 50% of EnBW customers and 78% of Yello customers are now happy to receive their contractual documents and invoices in paperless form. This figure thus increased by around 6% for EnBW customers in comparison to the previous year (previous year: 47%). Also, 88% of EnBW customers (excluding the basic supply of energy and reserve supplies) and 97% of Yello customers who concluded a new contract via digital and digitally supported channels have selected paperless customer interaction. Our advances in the area of digitalization are also being demonstrated by the increase in use of our “zuhause+” app. It helps our customers to monitor their energy consumption and keep an eye on the resulting costs. More than 220,000 customers have now installed the app on their mobile devices. Yello customers have been able to use the new Yello app since May 2023. It has replaced the previous kWhapp and has now been installed on more than 390,000 customer devices.

Our aim is to rigorously anchor **sustainability** in our sales processes (e.g., with respect to our products and services). In doing so, we hope to generate economic, ecological and social value and strengthen our market position even further. Our initial focus has been placed above all on the area of climate protection. We were able to implement further initiatives in 2023 and we present the most important ones in the section "Selected activities" (p. 89 ff.↗).

Customer Satisfaction Index

Our customers lie at the heart of our philosophy and actions. We aim to build long-term relationships with our customers by offering an intelligent combination of products and services, developing new product worlds, communicating transparently and delivering the highest-quality service possible. Maintaining a high level of customer satisfaction is key. The Customer Satisfaction Indices for EnBW and Yello are compiled from customer surveys carried out by an external provider (p. 33 f.↗).

TOP

Key performance indicator

	2023	2022	Change in %	Forecast 2023
Customer Satisfaction Index for EnBW/Yello	130/161	139/166	-6.5/-3.0	127 – 139/ 150 – 161

The Customer Satisfaction Index for EnBW fell by 6.5% to a value of 130 in 2023. The satisfaction of EnBW retail customers was thus at a good level and within our forecasted range. A good level is reached when 50% of those surveyed indicate that overall they are particularly satisfied with EnBW. This is the case from 114 points upwards. The fall in the Customer Satisfaction Index in 2023 was due to an especially challenging market environment. A tense economic climate with persistently high inflation has caused retail customers to also have an increasingly negative view of energy suppliers and their pricing policies. We initiated various different measures to improve customer satisfaction. These included developing a sustainable range of products and pushing forward the expansion of our digital and analog range of services. We offer special services, such as the EnBW zuhause+ app, to help our customers properly understand and reduce their energy costs. We believe that constant investment in our national marketing campaign with a focus on our Germany-wide e-mobility services is having an additional positive effect on the image of the company with respect to innovation and sustainability.

The satisfaction of Yello customers fell slightly in 2023 to an index value of 161 but still remains at an outstanding level despite the difficult market conditions. An outstanding level is reached when 70% of those surveyed indicate that overall they are particularly satisfied with Yello. This is the case from 159 points upwards. To improve customer satisfaction, Yello implemented a series of measures in 2023 to improve the quality of its digital and analog service processes.

The **customer test panel "Power-helden"** gives us feedback on our products, services and performance.

Online ↗

Another tool for evaluating and improving customer satisfaction is the **customer test panel "Power-helden"** (power heroes). It is currently made up of a group of around 1,500 people of all ages and social and educational backgrounds who source their energy from the EnBW Group or third-party providers. We use questionnaires, user tests and interviews to gain insights that can flow into the optimization, creation and monitoring of products and processes across the Group.

Further details are available in the "Report on opportunities and risks" on p. 135↗.

Selected activities

2023 was mainly characterized by the **implementation of regulatory requirements** resulting from the energy crisis. The German government passed numerous laws and ordinances in this area, such as the December emergency relief payment, the electricity and gas price brake, the amendment to the energy price brake ("Repair Act"), the reduction in value added tax for gas and district heating and various allocations (p. 59↗). There were also comprehensive changes to the Act on Metering Point Operation (Messstellenbetriebsgesetz, MsbG) that also necessitated adjustments to our processes and systems. Thanks to our high degree of digitalization and agile working practices, we were able to implement all of the legal requirements on time. This helped to reduce the financial burden on our customers by around €100 million in 2023.

We provide **information on how to save energy** on our website.

Online ↗

In response to the **challenges faced on the energy market** due to the war between Russia and Ukraine, EnBW and Yello supported their customers by offering a **gas saving bonus** for the 2022/2023 heating period. Customers who reduced their gas consumption by 10% between October 2022 and April 2023 were rewarded with a bonus of €100 in the second quarter of 2023. This bonus helped customers cushion increasing costs and gave them an extra incentive to save energy.

Information on developments with respect to **sustainability at Yello** can be found here.

Online ↗

Green electricity has become the standard in the product portfolio of EnBW and Yello. The proportion of the electricity supplied to new customers by EnBW and Yello that is accounted for by green energy now stands at 100% (EnBW excluding the basic supply of energy). 63% of the total customer base are now supplied with green electricity by both brands. Taking offsetting measures into account, Yello and EnBW were able to save a total of around 1,380,000 t of CO_2 emissions in 2023.

To help people in Germany make the **switch over to sustainable heating technology,** EnBW has been working together with Vaillant, one of the leading suppliers of heat pumps, since May 2023. We can thus offer potential customers individual advice and also a range of heat pumps from Vaillant specialist partners, together with an appropriate heat pump tariff from EnBW. EnBW is using this partnership to expand its range of products and services for customers in the rapidly growing market for sustainable heating technology.

Further information on **electromobility** is available online.

Online ↗

More information on the **EnBW Wallbox** for charging e-cars at home can be found under the following link.

Online ↗

EnBW is the market leader among both charging infrastructure operators and electromobility providers in Germany via its subsidiary EnBW mobility+. It operates the biggest quick-charging network in the country and is continuing to expand it at a rapid pace. In 2023, EnBW mobility+ became the first company to reach the milestone of 1,000 quick-charging stations nationwide. In order to **expand the charging infrastructure** for electromobility, we are not only investing in our own stations but also in stations that we are jointly developing with our partners. We once again concluded more long-term, nationwide cooperation agreements with renowned companies in 2023 and were able to place more than one new quick-charging station per working day into operation.

Alongside smaller charging stations, we are also installing **large quick-charging parks** with eight or more high-capacity charging points and quick-charging parks with solar roofs. EnBW mobility+ completed the construction of more than one large charging park per month on average in 2023 and opened 15 new roofed charging parks across Germany, including what is now our second-largest quick-charging park to date with 32 high-capacity charging points in Großburgwedel, north of Hannover. For the first time, we have also equipped this charging park with other services for vehicles, such as vacuum cleaners. At the quick-charging park in Chemnitz, we were able to install the first charging points with an output of 400 kW in the second half of 2023. By the end of 2023, there were more than 4,000 quick-charging points installed that can be used simultaneously. EnBW mobility+ significantly increased its annual investment in e-mobility in the 2023 financial year from more than €100 million to around €200 million.

In September 2023, EnBW presented its mobility and charging services on the Open Space at IAA MOBILITY in Munich. Among other things, it presented the **"NextLevel charging park" concept** and revealed how the sustainable charging parks of the future will look. This concept not only focuses on environmental goals but also on, for example, improving inclusion by offering low-barrier charging points.

EnBW mobility+ **won the German Sustainability Award** for the "Traffic infrastructure" sector.

Online ↗

In our role as an **electromobility provider,** we are able to offer our customers access to more than 500,000 charging points in 17 European countries via the EnBW HyperNetwork and the EnBW mobility+ range of products and services (as of 31 December 2023). The EnBW mobility+ app had been downloaded more than 2.3 million times in total by the end of 2023.

In fall 2023, we launched the **"Charging power for everyone" digital campaign** with the aim of attracting young women to the EnBW brand. We want to demonstrate in our campaign – which includes a song performed by the well-known female singer Elif and other artists – that women are not only engaged in the supposedly male-dominated realm of electromobility but are also a real force for pushing forward sustainability.

Our subsidiary **SENEC,** based in Leipzig, is a specialist in equipping customers so that they are able to meet their own energy needs with solar electricity. EnBW and SENEC have been offering a complete integrated home energy management system called "Cloud pro" since June 2023 that allows homeowners to directly sell their surplus electricity at the green electricity tariffs offered by EnBW. In November 2023, SENEC made the decision to replace a large number of existing storage systems with a new battery technology based on lithium iron phosphate (LFP). This decision was taken in response to a total of six incidents with SENEC storage systems based on lithium ion batteries in 2022 and 2023. SENEC is due to begin replacing the affected modules free of charge in summer 2024.

Information on our **contracting services** and reference projects is available on this website, which was newly designed in 2023.

Online ↗

In the area of **contracting,** we provide industry, the real estate sector and public clients with sustainable and efficient energy infrastructure implemented directly at the customer's site. We create customized energy concepts for the provision of energy with either no CO_2 emissions or only low emissions – a service that is now in ever greater demand. In 2023, we concluded a 15-year contracting agreement with an international corporation. We will build a new and highly efficient energy and media supply at the customer's site in Lower Saxony that is projected to reduce CO_2 emissions by 80%. The energy concept involves an extensive plan to convert the heat supply from natural gas combustion to heat pumps and biomass, marking an important step toward decarbonization and a climate-neutral supply of useful energy in the future. We also modernized the **heating supply** for a care home with neighboring apartments for senior citizens and for a nursery for a local authority customer in Baden-Württemberg. At least 50% of the annual heating requirements of around 2,000 MWh will be covered by a local heating system powered by renewable energy sources. The new plant comprises a wood pellet boiler system and two combined heat and power plants. These measures will be enhanced by a smart energy and billing management system. The modernization work should reduce CO_2 emissions by around 520 t per year. An important component of our long-term contracting agreements is the ongoing monitoring and optimization of plant operation. We enhance applications and business processes as part of our digitalization approach that automatically collect, link and evaluate data from the plant. To support the heating transition, we are working together with the municipal sales department to prepare bids for contracting projects to realize heating concepts and local heating networks.

Information on the **Local Authority Energy Day 2023** can be found in the special edition of our KommPlus magazine.

Online ↗

Our company views itself as an experienced and capable **partner for local authorities and public utilities.** We have invested in many local authority companies across the whole of Baden-Württemberg and play an active role in networks with our participating interests and other public utilities. Local authorities are also able to invest in Netze BW using our **"EnBW connects"** participation model. A total of 214 local authorities have currently indirectly invested in Netze BW by acquiring shares in the local authority holding company Netze BW GmbH & Co. KG. Almost 14% of the shares in Netze BW are now held by local authorities. The German Buildings Energy Act that obligates cities and local authorities to develop a heating plan came into force on 1 January 2024. Against this background, we already started to expand our range of consultancy services in 2023 to include **local authority heating planning** to specifically identify areas of potential and develop customized heating concepts that can actually exploit this potential. In this context, we have been offering a quick check service to local authorities since February 2024 to determine their need for heating grids. We also intend to develop an efficient solution for the simplified heating planning process that is required by law for municipalities with less than 10,000 residents. In addition, Netze BW is gradually offering additional digital services for local energy management to its partners via its established local authority platform. Since 2023 this includes, for example, a digital carbon footprint tool that local authorities can use to create a transparent presentation of their greenhouse gas emissions. As a result, we can provide comprehensive support to local authorities during all of their decision-making processes dealing with the theme of heating and push forward the implementation of the energy transition at a local level (p. 60↗).

A newly designed website that forms part of a brand relaunch provides an overview of the portfolio of telecommunication and Internet services offered by **NetCom BW.**

Online ↗

The main telecommunications activities at EnBW AG are bundled together in **EnBW Telekommunikation** with its subsidiaries NetCom BW and Plusnet. Expanding the fiber-optic network continues to be a main focus of the corporate strategy of **NetCom BW.** Aside from carrying out any necessary expansion of the broadband network together with cities, local authorities and municipal associations, NetCom BW is working more intensely on the implementation of self-financed projects – it concluded many new cooperation agreements with local authorities in 2023. While the pre-marketing process is still being carried out in some cities and municipalities, NetCom BW has now been able to successfully conclude this process with 28 local authorities. The construction work for these expansion projects is now being gradually completed. Work is also continuing on the integration of the network operations and end-customer business of the company Telekommunikation Lindau that started in 2022. In the Lindau region, the company recently created the necessary conditions for offering NetCom BW products on the network. In addition, the FTTC product portfolio has been expanded to include broadband with up to 150 Mbit/s, making the product range even more attractive. In October 2023, the customer sales department started work on migrating customers from Telekommunikation Lindau to the NetCom BW network. Furthermore, NetCom BW also launched its new brand identity in October 2023 with the goal of positioning itself even more strongly as an independent telecommunications network operator within the EnBW Group.

Plusnet has a new brand identity. Further information on its products and services can be found here.

Online ↗

Plusnet continued to push forward the expansion of the fiber-optic network in selected undersupplied industrial areas in 2023 and is financing this expansion itself. The company, based in Cologne, has now grown its sales area for the expansion of the fiber-optic network to around 40 local authorities in North Rhine-Westphalia, Hesse, Rhineland-Palatinate and Bavaria. By 1 August 2023, Plusnet had expanded its fiber-optic product range in the respective expansion areas to include Internet and telephony products for retail customers. Furthermore, Plusnet continued its transformation towards becoming a fiber-optic-based business and continued the development of its own Netbridge network platform. This platform enables Plusnet to integrate fiber-optic networks from various providers across Germany into one virtual network and open them up to all market participants (open access). In view of the fragmented fiber-optic landscape in Germany, this is an important lever for facilitating sustainable business practices as it allows the network load to be managed efficiently. As part of its realignment towards fiber-optic networks, Plusnet also launched a new brand identity in October 2023 and is positioning itself as a provider of modern communication solutions for large customers and local authorities.

We present our **services in the area of sustainable districts and our latest projects** here.

Online ↗

We are supporting the **International Building Exhibition IBA'27** in Stuttgart.

Online ↗

In the area of **sustainable districts,** we develop sustainable, holistic and, at the same time, cost-effective concepts for district infrastructure for cities, municipalities and project developers. This business area takes on responsibility for the general planning and for the supply and future operation of the technical infrastructure, including the integration of, e.g., mobility concepts, digital parking space management and smart services. In 2023, we were able to generate 20 new contracts covering around 2,300 residential units and commercial districts with total commercial space of around 119 hectares. Three projects are in the commissioning phase, another three are being implemented and in the first quarter of 2024 we finished the preparations for starting construction on a further three projects. As a member of "IBA'27 Friends," we are supporting the International Building Exhibition 2027 in Stuttgart. Our concepts will provide important answers to the key question being posed at the exhibition: "What will the future of construction look like?" We are developing and planning sustainable and cross-sector supply concepts within four IBA projects that will provide space for over 5,000 people to live and work, including the "Backnang West" district covering an area of 17 ha, which itself will be home to around 650 residential units and approx. 1,500 workplaces.

Supply reliability

As an energy company and in cooperation with our distribution grid companies, we are tasked with guaranteeing a secure and reliable supply of electricity and gas to our customers. We face additional challenges now, and will do in the future, due to the increasing amount of decentralized generation, with volatile feed-ins as a result of changing weather conditions, and the electrification of road traffic. Our grid companies are preparing their distribution grids so that they can handle this decentralized energy world. To this end, they are expanding the existing conventional infrastructure to integrate smart grid technologies so that they can better monitor and manage the generation, distribution and storage of energy. This work includes, for example, the further expansion of local transformer stations with remote monitoring and control systems to reduce the time it takes to find faults, as well as the introduction of an app-based malfunction alert system. In addition, the launch and implementation of an AI-based modernization strategy will enable the targeted replacement and repair of the various plants. This system uses artificial intelligence to improve the detection of material damage and avoidable breakdowns before they even occur. As a result, the grid companies will be able to reduce unscheduled downtimes and thus improve supply reliability.

Further information on the **expansion of the grids at Netze BW.**

Online ↗

Our grid companies are responsible for the secure and reliable operation of the distribution grids. The processes are managed by the respective grid control center, which is also responsible for coordinating any work to rectify faults in the grid in its region. As part of the investment and maintenance programs, our grid companies are upgrading their grids and expanding them according to demand. Netze BW continued its comprehensive expansion and renewal program for its distribution grids that started in 2022. These measures will help to improve supply reliability. The overall annual budget for the realization of all investment and maintenance measures is approved by the Board of Management of the EnBW Group. The measures are carried out over one or multiple years and are realized independently by our grid companies. Some of the investment budget is used for the gradual expansion of smart grids. The growing use of smart grid technology allows us, on the one hand, to optimize our investment processes and, on the other hand, to improve the security of supply in our grids and with it the satisfaction of our customers and our reputation. Besides the reliability and security of supply, the efficiency of the measures is also taken into account when making investment decisions.

SAIDI

We record all unscheduled interruptions to supply at our distribution grid operators for electricity and gas. This data flows into the “System Average Interruption Duration Index” (SAIDI) for each grid. It states the average duration of supply interruptions per end consumer per year (p. 33 f.↗).

TOP

Key performance indicator

	2023	2022	Change in %	Forecast 2023
SAIDI electricity in min./year [1]	19.3	16.6	16.3	15 – 20

1 SAIDI electricity includes all unscheduled interruptions to supply that last more than three minutes for the end consumer.

We managed to keep the figure for the supply reliability of the electricity distribution grid within the forecasted range in the 2023 financial year despite a significant event of the category “force majeure.” The increase of 2.7 minutes was mainly due to an exceptional storm in Baden-Württemberg on 11 July 2023. The massive damage it left behind caused disruptions in more than 100 local authorities in our supply area. In contrast, the increasing digitalization and gradual modernization of our distribution grids has had a positive impact on supply reliability.

At our gas distribution grid operators, the average duration of unplanned supply interruptions per end consumer (SAIDI Gas) was below 2 min./a in the 2023 financial year. There was a change to the segment allocation for the calculation of SAIDI Gas in 2023. The adjusted figure for 2022 was below 6 min./a.

Environment goal dimension

Our Group environmental targets – which are integrated into the Group strategy – relate to the expansion of renewable energies and to making our contribution to climate protection. These targets are measured using the key performance indicators "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" and CO_2 intensity. Our Group environmental goals are supplemented by activities and targets for the implementation of environmental themes in the EnBW Sustainability Agenda (p. 28 f.↗). Alongside EnBW AG, the main subsidiaries dealing with environmental issues include Energiedienst (ED), Stadtwerke Düsseldorf (SWD), Pražská energetika (PRE) and Netze BW. These and other subsidiaries have an environmental management system certified according to DIN EN ISO 14001 or validated according to EMAS, as does EnBW AG. We have thus created the prerequisites for ensuring that environmental requirements are systematically and continuously taken into account. The system is used to manage guidelines and regulations, define and monitor environmental targets and establish the necessary testing processes. The consistent implementation and further development of the environmental management system ensures that any material negative impacts on the environment can be avoided as well as possible. Risks generally exist in the area of environmental protection due to the operation of power and heat generation plants and infrastructure facilities and the possible consequences this could have for the air, water, soil and nature. We counter these risks using organizational and procedural measures to reduce their impact, as well as through emergency planning and hazard prevention measures.

You will find a detailed presentation of the **EnBW Sustainability Agenda** and our **climate-neutrality strategy** here.

Online ↗

You can download the **Environmental Declaration of Netze BW** here.

Online ↗

Expansion of renewable energies

Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

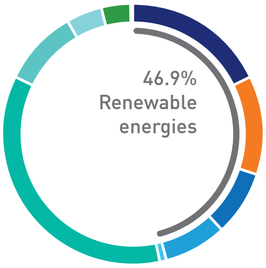
TOP

Key performance indicator

	2023	2022	Change in %	Forecast 2023
Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %	**5.7/46.9**	5.4/41.7	5.6/12.5	5.8 – 6.0/ 47.0 – 48.0

In 2023, the installed output of renewable energies increased by 300 MW to 5.7 GW. The share of the generation capacity accounted for by RE increased to 46.9%. This meant that these key performance indicators were almost within their forecasted ranges. We placed several new solar parks and especially wind farms into operation in Germany. We also added new output in the areas of photovoltaics and onshore wind farms in France. We have thus continued to push forward the expansion of electricity generation from renewable energy sources in accordance with our strategy. Expanding renewable energies to between 6.5 GW and 7.5 GW by 2025 is one of the key measures in the EnBW Sustainability Agenda (p. 28 f.↗). Our thermal output decreased as planned due to the final decommissioning of our Neckarwestheim II nuclear power plant in April 2023.

Installed output
in %



- 17.9 Wind (2022: 15.4)
- 12.4 Pumped storage (with natural flow of water) (2022: 11.6)
- 8.0 Run-of-river (2022: 7.7)
- 7.8 Photovoltaics (2022: 6.4)
- 0.7 Other renewable energies (2022: 0.6)
- 35.5 Brown and hard coal (2022: 33.2)
- 9.5 Gas (2022: 8.9)
- 4.5 Pumped storage (2022: 4.2)
- 3.7 Other thermal power plants (2022: 12.0)

Generation capacity[1] (as of 31/12)

Net electrical output[2] in MW	2023	2022
Renewable Energies	**5,728**	**5,444**
Run-of-river power plants	982	1,008
Storage/pumped storage power plants using the natural flow of water[2]	1,517	1,513
Onshore wind	1,212	1,031
Offshore wind	976	976
Photovoltaics	956	832
Other renewable energies	85	84
Thermal power plants[3]	**6,498**	**7,622**
Brown coal	875	875
Hard coal	3,467	3,467
Gas	1,161	1,166
Other thermal power plants[4]	450	1,569
Pumped storage power plants that do not use the natural flow of water[2]	545	545
Installed output[5]	**12,226**	**13,066**
of which renewable in %	46.9	41.7
of which low CO_2 in %[6]	14.0	13.1

1 Generation capacity includes long-term procurement agreements and partly owned power plants.
2 Output values irrespective of marketing channel, for storage: generation capacity.
3 Including pumped storage power plants that do not use the natural flow of water.
4 Following the final decommissioning of Neckarwestheim II on 15/04/2023, the nuclear power plants are reported under "other thermal power plants" from the Integrated Annual Report 2023 onwards and the figures for the previous year have been restated in accordance with the current presentation. The output reported for Neckarwestheim II under "other thermal power plants" in 2023 is 0 MW. The output reported for nuclear power in the previous year is 1,223 MW.
5 In addition, power plants with an installed output of 1,706 MW were registered for decommissioning. However, they were classified as system-relevant by the Federal Network Agency and TransnetBW and are thus used by TransnetBW as reserve grid capacity.
6 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

Own generation[1, 2] by primary energy source

in GWh	2023	2022
Renewable Energies	**12,680**	**11,744**
Run-of-river power plants	5,211	4,676
Storage/pumped storage power plants using the natural flow of water	676	687
Onshore wind	2,425	1,927
Offshore wind	3,218	3,331
Photovoltaics	869	825
Other renewable energies	281	298
Thermal power plants[3]	**13,872**	**30,340**
Brown coal	3,501	6,348
Hard coal	4,584	10,606
Gas	2,767	2,764
Other thermal power plants[4]	2,126	9,541
Pumped storage power plants that do not use the natural flow of water	894	1,081
Own generation	**26,552**	**42,084**
of which renewable in %	47.8	27.9
of which low CO_2 in %[5]	13.8	9.1

1 Own electricity generation includes long-term procurement agreements and partly owned power plants.
2 Generation volumes are reported without the volumes for positive redispatch that cannot be controlled by EnBW. Own generation including positive redispatch in 2023 was 29,013 GWh.
3 Including pumped storage power plants that do not use the natural flow of water.
4 Following the final decommissioning of Neckarwestheim II on 15/04/2023, the nuclear power plants are reported under "other thermal power plants" from the Integrated Annual Report 2023 onwards and the figures for the previous year have been restated in accordance with the current presentation. The generated volume of electricity from nuclear power reported under "other thermal power plants" in 2023 is 1,975 GWh (previous year: 9,390 GWh).
5 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

In 2023, own generation of electricity was considerably below the previous year's level at 26.6 TWh. This development was primarily attributable to the significantly lower deployment of our thermal generation plants as a consequence of prices on the market and the final decommissioning of our Neckarwestheim II nuclear power plant in April 2023. Renewable energy generation increased in comparison to the previous year. This was due to the addition of new power plants and better wind conditions, as well as higher generation at the hydropower plants in comparison to the previous year, which was a year characterized by low water levels. The proportion of own generation from renewable energy sources thus increased substantially in comparison to the previous year to 47.8%.

CO_2 intensity/climate protection

CO_2 intensity

TOP

Key performance indicator

	2023	2022	Change in %	Forecast 2023
CO_2 intensity in g/kWh[1]	347	491	-29.3	368 – 442 (-25% to -10%)

1 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW. In the reporting year, this performance indicator includes generation volumes of 24,576 GWh (previous year: 32,693 GWh). The amount of CO_2 emissions from controllable electricity generation included in the performance indicator is 8,536 thousand t (previous year: 16,038 thousand t). If the share of positive redispatch that cannot be controlled by EnBW is taken into account, CO_2 intensity would be 393 g/kWh for the reporting year (previous year: 508 g/kWh). The CO_2 intensity including nuclear generation for the reporting year was 366 g/kWh (previous year: 401 g/kWh). We publish a five-year comparison of the performance indicators in our "Multi-year overview" on p. 310.

The CO_2 intensity of our own electricity generation fell in comparison to the previous year by 29.3% to 347 g/kWh and thus slightly exceeded the forecast revised in the third quarter for a decrease of between 10% and 25%. In comparison to 2022, generation from renewable energy sources increased due to favorable wind conditions and higher generation from hydropower. In addition, our coal power plants were deployed to a much lower extent due to prices on the market. Another factor was the shutdown of our Heilbronn hard coal power plant 7 due to damage. The CO_2 intensity was 36.6% lower in 2023 in comparison to the reference year of 2018 (548 g/kWh). We were thus still within our target corridor in 2023 for a reduction in CO_2 intensity of between 380 and 440 g/kWh by 2025.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 135 f.↗).

Carbon footprint of EnBW

EnBW calculates and reports on its carbon footprint in accordance with the international Greenhouse Gas Protocol standard and takes into account Scope 1, Scope 2 and Scope 3 emissions.

The Scope 1 emissions from burning fossil fuels are calculated based on the guidelines issued within the European Emission Trading System (EU ETS). These guidelines are mainly based on the EU regulation on the monitoring and reporting of greenhouse gas emissions (in short: Monitoring Regulation, MRR) (EU Regulation 2018/2066). The emission factors are taken from the current "Guidance for preparing monitoring plans and emission reports for stationary installations" from the German Emissions Trading Authority (DEHSt) and publications issued by the German Environment Agency (UBA). The CO_2 equivalents of the greenhouse gases are calculated based on their global warming potential GWP100 according to the Sixth Assessment Report (AR6) from the IPCC.

We measure market-based Scope 2 emissions using specific emission factors according to the designation of the electricity and heating supplies to our plants and buildings. In order to determine location-based Scope 2 emissions, we apply the energy designations used in the respective country, such as the Bundesmix (federal mix) of the general electricity supply according to section 42 German Energy Industry Act.

We are currently working with a general emissions factor of 29 g CO_2eq/kWh for the upstream Scope 3 emissions of our gas sales and the gas consumption at our gas power plants based on information from the German Environment Agency and the DBI Gas and Environmental Technology Institute. We calculate the upstream CO_2 emissions for procured fuel used for the generation of power and heating in our power plants using GEMIS factors. The Scope 3 emissions for our flights and train trips are based on data we receive from the booking agents and the German rail company Deutsche Bahn. For the gas combustion of our customers, we use an emissions factor of 201 g CO_2/kWh natural gas in accordance with Annex 2 of the Emissions Reporting Ordinance 2030.

EnBW also provides information on the performance indicator "CO_2 emissions avoided" when reporting its carbon footprint. A key goal of the energy transition is to protect the climate by reducing greenhouse gas emissions and using energy efficiently. "CO_2 emissions avoided" give another measure of EnBW's contribution to the achievement of this target. The activities carried out by EnBW in this area – both internally and also with our customers – support the implementation of the energy transition.

Direct CO_2 emissions are determined mainly by the deployment of our power plants. The volume of electricity generated by our thermal generation plants fell in comparison to the previous year and led to a corresponding decrease in direct CO_2 emissions from 17.5 million t CO_2eq in 2022 to 10.9 million t CO_2eq in 2023. Lower indirect CO_2 emissions from grid losses were the main reason for the decrease in Scope 2 CO_2 emissions from 0.5 million t CO_2eq to 0.4 million t CO_2eq. Scope 3 CO_2 emissions are mainly influenced by the gas consumption of our customers and thus by gas sales in the B2C and B2B sectors. As a result of lower gas sales (p. 69↗), Scope 3 emissions fell significantly in the 2023 financial year from 37.7 million t CO_2eq in the previous year to 26.6 million t CO_2eq. The increase in CO_2 emissions avoided due to the rise in electricity generation from renewable energies was almost completely compensated for by the fall in biogas activities so that CO_2 emissions avoided of 9.9 million t CO_2eq in 2023 were almost at the same level as in the previous year.

Carbon footprint [1]

in thousand t CO_2eq/in %	2023	2022
Direct CO_2 emissions (Scope 1)	**10,910/100.0**	**17,545/100.0**
Electricity generation – not controllable [2]	2,545/23.3	2,906/16.6
Electricity generation – controllable [3]	7,431/68.1	13,465/76.7
Heat generation	676/6.2	773/4.4
Operation of gas pipelines/plants [4,5]	188/1.7	328/1.9
Operation of electricity grid	31/0.3	32/0.2
Buildings	9/<0.1	11/<0.1
Vehicles	28/0.3	28/0.2
Other [6]	1/<0.1	2/<0.1
Indirect CO_2 emissions (Scope 2) [7]	**421/100.0**	**516/100.0**
Grid losses	364/86.2	449/87.0
Operation of plants, electricity grid	11/2.6	7/1.3
Operation of plants, gas grid [5]	25/6.0	40/7.7
Buildings	10/2.4	11/2.1
Operation of plants, data and telecommunications network	7/1.6	6/1.2
Other [8]	5/1.2	4/0.8
Indirect CO_2 emissions (Scope 3)	**26,576/100.0**	**37,675/100.0**
Upstream indirect CO_2 emissions (Scope 3)	**3,973/14.9**	**5,894/15.6**
Upstream gas sales	3,320/12.5	4,729/12.6
Procurement of fuel for power and heat generation plants	643/2.4	1,151/3.1
Upstream gas consumption, gas plants	6/<0.1	11/<0.1
Business trips	3/<0.1	3/<0.1
Downstream indirect CO_2 emissions (Scope 3)	**22,603/85.1**	**31,781/84.4**
Gas consumption by customers	22,603/85.1	31,781/84.4
CO_2 emissions avoided	**9,874**	**9,984**
CO_2 intensity of business journeys and in traveling CO_2/km	**155**	**163**

1 The figures may not add up due to rounding differences.
2 Includes the CO_2 emissions for electricity generation from redispatch and reserve power plant deployment.
3 CO_2 emissions from electricity generation excluding redispatch and reserve power plant deployment.
4 The figures for the previous year have been restated.
5 The methane emissions from the gas grids included here were calculated using the method developed by the Oil and Gas Methane Partnership (OGMP).
6 Includes non-automotive fuel consumption (e.g., emergency generators).
7 Market-based method. According to the location-based method, the Scope 2 emissions were 921 thousand t CO_2eq in 2022 and 872 thousand t CO_2eq in 2023.
8 Contains Scope 2 emissions from electricity consumption at water plants and own/operational consumption at charging infrastructure for e-mobility.

Emissions (Scope 1, 2 and 3)

4.0 million t CO_2eq	10.9 million t CO_2eq	0.4 million t CO_2eq	22.6 million t CO_2eq

Greenhouse gas emissions (CO_2, CH_4, N_2O and SF_6)

Scope 3 upstream

Other indirect greenhouse gas emissions

- Upstream gas sales (gas procurement)
- Procurement of fuel
- Business trips

Scope 1

Direct greenhouse gas emissions from sources belonging to or directly controlled by the company

- Electricity generation
- Heat generation
- Operation of gas pipelines and gas plants
- Operation of electricity grid
- Buildings
- Vehicles

Scope 2

Indirect greenhouse gas emissions originating during the production of purchased electricity, steam, district heating and cooling that the company consumes; grid losses

- Grid losses
- Operation of plants, electricity grid
- Operation of plants, gas grid
- Operation of plants, water supply
- Buildings

Scope 3 downstream

Other indirect greenhouse gas emissions

- Gas consumption by customers (B2B and B2C gas sales)

Upstream emissions by third parties ▸ Direct and indirect emissions at EnBW ▸ Downstream emissions by third parties

SO_2 intensity, NO_x intensity and waste water intensity

Alongside the two key performance indicators "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" and CO_2 intensity, we have also defined further environmental targets for reducing harmful emissions and minimizing the volumes of cooling water and waste water. Our target is to reduce the SO_2 intensity and NO_x intensity of our own electricity generation by 2025 by between 15% and 25% and by between 10% and 20%, respectively, in comparison to the reference year 2018. In terms of our waste water intensity, we have set ourselves a reduction target of between 20% and 30% by 2025 in comparison to the reference year 2018. The calculation of the three key performance indicators SO_2 intensity, NO_x intensity and waste water intensity is carried out using emissions of SO_2 and NO_x and the volumes of cooling water and waste water discharged from our own electricity generation at the EnBW Group together with the volume of electricity generated across the Group without the contribution made by the nuclear power plants. The performance indicators are calculated as the ratio between the emissions or volumes of waste water and the generated volume of electricity. They thus describe the specific amount of SO_2 or NO_x released or the cooling water and waste water discharged per kilowatt hour.

SO_2 intensity, NO_x intensity and waste water intensity

	2023	2022	Change in %	Target for 2025[4]
SO_2 intensity in mg/kWh[1]	**204**	259	-21.2	-15% to -25%
NO_x intensity in mg/kWh[1]	**224**	286	-21.7	-10% to -20%
Waste water intensity in l/kWh[1,2,3]	**28.0**	30.2	-7.3	-20% to -30%

1 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW.
2 Waste water is the total of the amounts of cooling and waste water that are discharged into surface water.
3 Procurement contracts are not included in the calculation of the performance indicator.
4 Based on the reference year 2018.

The SO_2 intensity and NO_x intensity of our own electricity generation decreased in comparison to the previous year by 21.2% to 204 mg/kWh and by 21.7% to 224 mg/kWh, respectively. The waste water intensity of our own electricity generation fell in comparison to 2022 by 7.3% to 28.0 l/kWh. The reduction in these three performance indicators in comparison to the previous year is also due to the increase in generation from renewable energy sources and the lower deployment of our coal power plants as described previously. SO_2 intensity, NO_x intensity and waste water intensity in 2023 were 30.9%, 33.7% and 9.0% lower in comparison to the reference year 2018, respectively (295 mg/kWh, 337mg/kWh and 30.8 l/kWh, respectively). In 2023, we were thus within our target corridors for the reductions in SO_2 intensity, NO_x intensity and waste water intensity by 2025 in comparison to 2018.

Energy consumption

Energy consumption

	2023	2022
Total final energy consumption in GWh [1]	1,146	1,072
Proportion of renewable energies in final energy consumption in % [2]	20.6	20.2
Energy consumption of buildings per employee in kWh per employee [3,4]	5,795	7,308

1 Includes final energy consumption of production excluding electricity and heat generation losses and including pump energy, energy consumption of grid facilities (electricity, gas and water) excluding grid losses, energy consumption of buildings and vehicles.
2 For electricity consumption for which the proportion of renewable energies is unknown, the Bundesmix (federal mix) label for electricity in the respective reporting year is assumed. For fuels, a proportion of 5% bioethanol is generally assumed.
3 The figure for the previous year has been restated.
4 Calculations based on assumptions and estimates. Only those companies with relevant consumption data have been taken into account.

Total final energy consumption includes the consumption of final energy for our business activities. The uptake of energy from renewable sources increased so that the proportion of renewable energies in final energy consumption rose from 20.2% to 20.6% in comparison to the previous year.

You can find numerous other **environmental performance indicators** on our website.

Online ↗

The energy consumption of our buildings covers the energy required for heating rooms and providing hot water and electricity. The temporary reduction in room temperature to 19 °C in accordance with the "German Ordinance on Securing the Energy Supply through Rapid Impact Measures" (EnSikuMaV), which was compulsory until the end of the heating period in spring 2023, and other measures to save energy in the short term led to a decrease in the energy consumption of buildings per employee from 7,308 kWh in 2022 to 5,795 kWh in 2023.

Selected activities

Energy-efficient real estate management: We aim to reduce **CO_2 emissions** and improve energy efficiency in our real estate portfolio. The portfolio managed by EnBW Real Estate GmbH comprises about 130 properties with approximately 300 buildings and a net floor space of around 690,000 m². EnBW Real Estate, the subsidiary responsible for most of the real estate activities of EnBW AG, has been set the target of reducing the specific energy consumption of existing buildings by 10% by 2025 and by 20% by 2030, based on the reference year of 2018. We had achieved a reduction of around 24% at the benchmark sites by the end of 2023 and thus exceeded the target. The temporary reduction in room temperature to 19 °C in accordance with the "German Ordinance on Securing the Energy Supply through Rapid Impact Measures" (EnSikuMaV) and other measures to save energy in the short term meant we were able to exceed the target in 2023. Following the expiry of the measures in the EnSikuMaV, the room temperature was reset to the normal level and we are thus continuing to pursue our existing target unchanged.

A program of measures to achieve a "climate-neutral real estate portfolio" was launched in 2023. The program covers around 250 buildings and the following measures: approximately 30 energy-focused building refurbishments, including a switch to heat pumps in some cases, the expansion of more than 90 PV plants, a comprehensive switch to LED lighting, digital metering systems and the implementation of a building automation platform. Reducing CO_2 emissions and energy consumption are also a priority in the renovation of our sites. The preliminary planning stage for the energy-focused refurbishment of the buildings in Mühlacker and Altbach has been concluded and we are now focusing on the in-depth architectural and energy-efficiency plans. Based on the preliminary plans for the Mühlacker site, we will achieve an EG 40 EE standard (energy-efficient building level 40 with renewable energies) and reduce CO_2 emissions by around 90%. Our two new construction projects in Oberndorf and Osterburken will also comply with the EG 40 EE standard and in combination with a PV plant will generate more energy than they consume themselves, thus making an important contribution to improving energy efficiency in our real estate portfolio. The installation of the first PV plants in Esslingen, Biberach and Veringenstadt with an output of around 900 kWp has already been completed and they will be connected to the grid in 2024. Work to replace lighting and meters is also underway.

To ensure that we achieve our strategic target of a climate-neutral real estate portfolio, we are implementing and installing **monitoring and control systems** by the end of 2024 that will provide us with transparent and relevant information that can be used in the form of performance indicators to give us flexible control of these sites and processes.

Climate-friendly internal mobility: In order to make a contribution to climate-friendly mobility, we are planning to replace all of the conventional-drive fleet vehicles used for work purposes by employees at EnBW AG with **fully electric vehicles** by 2025. There were still 134 conventional-drive vehicles at the end of 2022 but this figure had fallen to 65 by the end of 2023. At the end of 2023, we thus already had 154 fully electric vehicles in the EnBW AG fleet. Our subsidiary PRE has also introduced a program to switch its fleet over to electric vehicles to help it achieve its goal of climate neutrality. It plans to increase the proportion of electric vehicles in its fleet of passenger vehicles to 37% by 2025, 50% by 2030 and 100% by 2035. In 2023, PRE replaced ten combustion motor cars in the fleet with ten newly purchased electric cars. This means that 28.4% of the vehicle fleet at PRE is currently fully electric. ED Netze is also working on the full electrification of all vehicles that are technically suitable by 2030.

Further information on how we use our **solar parks** to **protect species** can be found here.

Online ↗

Biodiversity: To promote biodiversity and help preserve species, we carried out a number of activities in 2023. We started the **close-to-nature design** of the EnBW site in Biberach and completed the first phase by the end of the year. The close-to-nature design of the entire company premises will be realized in 2024. As part of the "UnternehmensNatur" (CompanyNature) project funded by the Federal State of Baden-Württemberg, we discussed and exchanged ideas on this transformation with NABU and the Baden-Württemberg Land Agency. Our main focus was to assess how we can use biodiversity measures to create valuable habitats for various endangered species of flora and fauna on our site. EnBW will use the redesign of the Biberach site as a template for further close-to-nature design projects across the entire Group.

The holistic measures developed to improve biodiversity and climate resilience at the site in Biberach were used as the basis for the development of so-called **biodiversity modules** in 2023. These modules comprise independent packages of measures for promoting a particular aspect of biodiversity and will make it quicker and easier to implement biodiversity measures at other EnBW sites in the future. Lessons learned from the development of these modules were also taken into account in 2023 in the planning processes for various new constructions. This included, for example, green facades, green roofs, water retention systems, and nesting and breeding sites. The aim is to turn these new sites into close-to-nature working environments for employees from the outset and create the best possible conditions for animals and plants.

As part of the **blooming transformer station** project, our subsidiary Netze BW has been using the free spaces around transformer stations to promote biodiversity and help to preserve species since 2019. The aim is to create natural flower meadows at every transformer station that will become home to a large number of different species usually found in the natural environment at the respective sites. A further ten transformer stations were transformed into "buzzing transformer stations" using seeds typical to the region in 2023 and are now providing a rich habitat for more than 3,000 species of butterflies, 500 species of wild bees and thousands of other species of insects native to Germany. These habitats boast up to 60 different plant species per 10 m², providing food, protection and a place of retreat for native insects. Netze BW has already created flower meadows at 49 sites covering a total area of almost 122,000 m² and is thus actively contributing to the conservation and proliferation of flower pollinating insects.

Another project to promote biodiversity was carried out by ODR in the second half of 2023 in cooperation with the Ostalb-Heidenheim Farmers' Association. Colorful flower borders covering a distance of over 5 km have been planted along the edge of fields. These **biotopes** will provide food and shelter to beetles, butterflies and bees and thus support the pollination of our wild plants and arable crops.

Find out more about our measures to conserve **biological diversity** and protect **nature and species** on our website.

Online ↗

As part of the **"Insect-friendly green areas"** project, SWD developed measures in 2023 to allow for the insect-friendly greening of spaces. These included the obligatory inspection of all outdoor spaces to determine whether they could be greened for the benefit of insects, as well as the opportunity for employees to use one hour of their working week to voluntarily care for and maintain green areas.

The EnBW funding program **"Stimuli for Diversity"** has been successfully supporting social engagement in Baden-Württemberg for the protection of amphibians since 2011 and the protection of reptiles since 2016. This funding program was jointly launched by the Baden-Württemberg State Institute for the Environment, Measurements and Nature Conservation (LUBW) and EnBW. It is part of the project "The economy and business for nature," which is a component of the initiative "Active for biological diversity" that has been developed by the state government of Baden-Württemberg. It still remains the only conservation program from a company nationwide that not only funds the protection of one single species but two whole groups of species across the state. We funded nine project applications in 2023 and have thus successfully realized 149 projects in total over the past 13 years. The measures have helped to improve the habitats of native amphibians and reptiles so that their populations can start to grow again in the medium to long term.

-81%

reduction in paper usage in 2023 compared to the reference year of 2019.

Reduction in paper consumption: We have set ourselves the goal of significantly reducing paper consumption and want to reduce the volume of paper procured centrally at EnBW AG by up to 90% by 2025, based on the reference year of 2019. Mainly as a result of our digitalization initiatives, we were able to reduce our internal paper consumption by around 71 t and customer-driven paper consumption by around 540 t in 2023, which represents a reduction in paper consumption of 81% since 2019. Alongside the higher number of employees working from home, the further digitalization of our business processes at EnBW has also contributed to the reduction in paper consumption. We have launched a program to provide tailored consulting services for different areas of the company so that we can further reduce paper consumption in those processes with specific requirements. We also provide workshops in which digital alternatives can be identified or used for training purposes where necessary to make further savings in paper consumption.

Further environmental data, including on the **Global Reporting Initiative,** is available on the Internet.

Online ↗

Alongside the key performance indicators in the environment goal dimension, other environmental targets are defined in the EnBW Sustainability Agenda (p. 28 f. ↗). We utilize a broad range of additional environmental performance indicators for measuring, managing and reporting on the other results of our environmentally relevant activities. Selected activities and performance indicators are described in this section. Other **environmental performance indicators** can be found in our "Multi-year overview" (p. 312 ↗) and on our website.

Employees goal dimension

Using our HR strategy 2025 "People as the main focus," which is based on the EnBW 2025 corporate strategy (p. 26 ff.↗), we want to create the conditions that give the people at EnBW and our company itself the opportunity for growth, development, a future and thus success. The key tasks of HR are recruiting employees for the company, managing their development and accompanying them through the transformation, encouraging loyalty to the company among employees and maintaining and fostering their motivation, satisfaction and employability.

Employee engagement

People Engagement Index (PEI)

We use an employee survey (EnMAB) to measure the People Engagement Index (PEI) as a key performance indicator. The PEI allows us to draw conclusions not only on the satisfaction of employees, but also on how motivated and engaged they are in their work (p. 34↗).

TOP

Key performance indicator

	2023	2022	Change in %	Forecast 2023
People Engagement Index (PEI) [1]	82	81	1.2	> 78

1 Variations in the group of consolidated companies (all companies with more than 100 employees are considered (except ITOs)).

The employee survey EnMAB was held from 9 October to 27 October 2023. The survey achieved its highest coverage to date, being answered by around 23,400 employees, including trainees and students. On the basis of this survey, the PEI reached 82 points in 2023 on a scale of 0 to 100. It stood at 81 points in the previous year. According to an assessment by the service provider, an international benchmark index compiled using similar questions at numerous companies from various different sectors stood at 74 points in 2023. Our figures remained very high in comparison with other companies in 2023 in the "Engagement" and "Well-being and respect" categories.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 136↗).

Selected activities

Our **HR strategy 2025** "People as the main focus" supports the implementation of the EnBW 2025 corporate strategy. Digitalization requires a willingness to change, technological expertise and modern working practices. Our managers should not just place expectations on their employees but also support them and lead their teams with conviction into a more complex world. Our HR policy will support employees in this process of change, for example by developing new forms for cooperation and for further training and education. In addition, we value the potential offered by the diversity of our employees. Our sustainable HR strategy is also part of the strategic theme "Culture of sustainability" in the EnBW Sustainability Agenda.

The HR strategy focuses here on six strategic themes: People-centered transformation, Employer brand & recruiting, Leadership & skills, Qualification@EnBW, Diversity, Equity & Inclusion as well as HR processes, services & digitalization. We have allocated the following activities to these six themes:

People-centered transformation: In the **"BestWork"** initiative, we are reshaping our working world and making it fit for the future. Our aim here is to improve both the quality of our work and the satisfaction of employees in equal measure. A special focus is being placed on rules for mobile working that take account of the best interests of employees and designing modern working worlds in the office that fulfill the requirements of a more flexible and hybrid way of working. In the second stage of "BestWork" under the motto "CooperationSpaces," we are optimizing workspaces and technical equipment for the form of cooperation selected by each team and for hybrid collaboration. Employees are due to move into their newly designed workspaces by the end of the first half of 2024. In 2023, we already introduced new digital services to support location-independent cooperation in teams. Another component of this initiative was added in 2023 with **"BestWork Health."** It follows a holistic approach to health with the aim of promoting the physical and psychological health of employees within the redesign of working processes and environments and thus helping to create the best possible quality of work and life for employees. In this context, we will collate existing health measures and develop further health-related measures. The first event held within "BestWork Health" was Mental Health Day in October 2023, which provided information on preventative measures in the area of mental health.

Our corporate video for the **employer campaign "A job transition for the energy transition"** can be found here.

Online ↗

Further information on the new **employer campaign** can also be viewed online.

Online ↗

Employer brand & recruiting: EnBW is on track for growth. This will require us to secure new talent as we need enough specialists to cover the energy transition and the associated expansion of corresponding business fields. Against this background, EnBW launched a new employer campaign under the motto "A job transition for the energy transition" in 2023. The aim is to maintain awareness for and improve the attractiveness of EnBW as an employer nationwide and mobilize specialists for the energy transition. We posted advertising images and a corporate video on social and online media across Germany for this purpose. A matching website also helped to support the visibility and reach of the campaign. We are continuously improving and updating our recruitment processes. For example, we have optimized our competence-based selection process for specialists and managers and made our processes for the recruitment of apprentices and students more efficient by introducing online tests.

Leadership & skills: The growth of our company is closely linked to the personal development of every individual person. Our digital learning and development platform **"LernWerk"** enables employees to organize their own personal development independently. Themes such as sustainability, grid technology training, health management, data analytics and artificial intelligence can be found in so-called knowledge hubs. "LernWerk" not only includes content to be consumed digitally but also promotes active application of content via, among other things, physical exchange formats. For example, managers can register for the "Leadership Development Journey" (LDJ) program for which new modules are constantly being developed. Since the beginning of the LDJ, 70% of all managers at EnBW AG have already participated in at least one LDJ module. One of the new modules added in 2023 was "New to leadership." It is aimed at all managers and designed to help them strengthen their understanding of their leadership role to give them the mindset and skill set that they need to carry it out.

Qualification@EnBW: On 31 December 2023, there was a total of 1,212 trainees and students working in the EnBW Group. Our 20-month EnBW Corporate Trainee Program started in April 2023 and will also help to tackle the skills shortage. In addition, 152 apprentices and 73 dual students joined EnBW and Netze BW in September 2023. Our young talent also includes the participants on the career integration program, who have started their technical apprenticeships after successfully completing their entry qualifications. EnBW has been increasingly utilizing virtual reality (VR) and augmented reality (AR) for **training** and is cooperating with the start-up Holo-Light (p. 51↗) in this area. Trainees are able to use smart glasses and VR software to prepare themselves to deal with, for example, hazardous situations, without actually being exposed to any real danger when they are in the virtual world. EnBW is also utilizing gamification approaches in its training, such as in the "E-Quiziert" learning app.

Further information on the **Dual Vocational Training Preparation Program** can be found here.

Online ↗

We have been offering a multistage **career integration program** to refugees and migrants since 2016, in which 38 people are currently serving a technical apprenticeship. 46 participants have now completed their training as either an industrial mechanic, electronics technician, plant mechanic or mechatronics engineer and 43 of them have been awarded a permanent contract. As part of this program, Netze BW participated for the first time in the Dual Vocational Training Preparation Program (AVdual) initiated by the Baden-Württemberg Training Alliance in 2023. AVdual aims to provide more young people with the opportunity to start their apprenticeship immediately after leaving school. Two of the eight participants in the AVdual program have been accepted on the career integration program so far. As part of our social engagement activities, we will continue the career integration program over the next few years and also continue to use it as an additional tool for recruiting young talent.

Diversity, Equity & Inclusion (DE&I): Diversity is a fixed component of our corporate culture and a key element of the HR strategy. Against the background of demographic change and the associated shortage of qualified workers, we not only need new recruitment strategies but also diverse and resilient teams. In this context, we took the first steps in the implementation of our new Strategy for Diversity, Equity & Inclusion, in short the **DE&I strategy,** in 2023. In particular, this strategy will help make us more attractive as an employer, increase the innovative strength of EnBW and further promote the themes of sustainability and competitiveness.

Proportion of female managers at EnBW AG

in %	2023	2022
First level below the Board of Management	15.4	11.1
Second level below the Board of Management	24.7	23.1

The Board of Management has set the goal of further increasing the **proportion of women** at both management levels below the Board of Management in the period from 1 January 2021 to 31 December 2025. At both the first level (top management) and second level (upper management), the proportion of women should increase to at least 20%. This target was not yet achieved in the 2023 financial year in top management. Nevertheless, it was possible to increase the proportion of women from 11.1% in the previous year to 15.4% in 2023. In upper management, the proportion of women increased from 23.1% in the previous year to 24.7% in 2023, which meant that the set target was achieved at the second level. We will continue to develop measures based on the HR strategy to achieve and stabilize the set targets.

HR processes, services & digitalization: We launched the "EnABLE HR" project with the aim of establishing a future-oriented process and IT-system environment for human resources work. We will use **intelligent system solutions** to relieve employees in the HR department of the burden of administrative, manual and repetitive tasks, for example, by offering a comprehensive range of self-service solutions. In 2023, the focus was placed on preparing and implementing the new IT systems, which was carried out step by step in the individual project units. In addition, workshops were held for various specialist departments to generate feedback and ideas based on the practical use of the systems. These will be used to help shape the newly designed IT solutions.

Selected activities at our key subsidiaries: In order to strengthen its attractiveness as an employer in a difficult job market, **Energiedienst (ED)** continued its initiatives in 2023. It established a new learning platform with the aid of the new software Workday and expanded its range of training courses for employees. The comprehensive transformation program "HR transformED," which has now been largely concluded, was another focus for the company. The main emphasis of the HR work at **Pražská energetika (PRE)** was the expansion and digitalization of HR processes. In addition, a trainee program has been launched to recruit specialists – above all students from the fields of electrical engineering and information technology – for the company. In 2023, **Stadtwerke Düsseldorf (SWD)** focused on securing the specialist workers to meet its needs. In this context, SWD launched an employer branding initiative to attract qualified specialists from technical and IT fields. It also increased the number of technical apprenticeships at the company. To push forward cultural change at the company, all managers have also been invited to participate in the journey of development "Lead our future." **VNG** launched a management development program under the motto "Leadership Excellence 2030+" to support the transformation process at the company. Meanwhile, the "Next Work" program was continued with the aim of developing the future working world at VNG in the dimensions of culture, space, technology and services.

Other issues

In accordance with the **collective bargaining agreement** from 4 April 2023, the first wage increase of 5.5% came into force and was backdated to 1 March 2023. The wages for the different pay scales were increased by a further 3.0% with effect from 1 January 2024. Remuneration for trainees increased by €180 per month, backdated to 1 March 2023, and then increased by a further €70 per month on 1 January 2024. The collective bargaining agreement is valid for 14 months until 30 April 2024.

EnBW provides a comprehensive range of services to promote the **health** of its workforce. This includes, among other things, preventative medical services, vaccinations, physiotherapy treatments and psychological counseling. The sickness ratio stood at 4.8% in 2023 and was thus 0.5 percentage points lower than the figure in the previous year.

We publish more **performance indicators for employees** on our website.

Online ↗

Other performance indicators

Employees [1]

	31/12/2023	31/12/2022 [2]	Change in %
Smart Infrastructure for Customers	5,711	5,248	8.8
System Critical Infrastructure	11,635	11,638	0.0
Sustainable Generation Infrastructure	7,563	7,151	5.8
Other	3,721	2,943	26.4
Total	**28,630**	**26,980**	**6.1**
Number of full-time equivalents [3]	26,943	25,339	6.3

1 Number of employees excluding apprentices/trainees and inactive employees.
2 The figures for the previous year have been restated.
3 Converted into full-time equivalents.

As of 31 December 2023, the EnBW Group had 28,630 employees, which was 1,650 more than at the end of 2022. This increase was primarily due to the intake of new employees in strategic growth fields. The increase in the number of employees in the Smart Infrastructure for Customers segment was primarily due to the increased demand for energy and storage solutions, the expansion of broadband and the billing service. The increase in the number of employees in the Sustainable Generation Infrastructure segment was mainly in the areas of Thermal Generation and Trading and Renewable Energies. Digitalization and transformation processes as well as intercompany restructuring increased the number of employees in "Other." The employee turnover ratio stood at 9.3% in 2023 and was thus 1.4 percentage points higher than the figure in the previous year.

Occupational safety

In the area of occupational safety, we have set ourselves the goals of avoiding accidents and work-related illness and creating a safe working environment. The Group guidelines "Occupational safety and health protection" describe the responsibilities and tasks related to occupational safety and define the processes. The EnBW guidelines for occupational safety and health protection are also described in this document. The Group Occupational Safety Working Group (AK KAS) has the task of regulating issues uniformly within the Group that affect all companies. It is headed by the Chief Operating Officer Sustainable Generation Infrastructure at EnBW and has the power to make binding decisions in accordance with the company's rules of procedure.

Through training and programs of measures, we work continuously on minimizing **danger in the workplace** which could result in accidents or work-related illnesses. In 2023, 86 managers participated in the training course "Responsibilities and liability with respect to occupational safety" that was organized by the Group occupational safety department. Other training courses for managers on the theme of occupational safety were also held at numerous Group companies.

The Group-wide **Quentic software** is now being used in 31 Group companies with around 18,500 employees. In 2023, we developed a digital solution to improve the user friendliness of Quentic even further: It will be possible to enter information on unsafe situations and personal injury via the EnBW News app in the future. Since July 2023, any employee exposure to carcinogenic and mutagenic substances such as asbestos and ceramic mineral fibers is documented centrally in Quentic.

LTIF

The key performance indicator LTIF (Lost Time Injury Frequency) is used to measure the number of LTI (Lost Time Injuries) according to the definition on p. 34↗. Every company included in the LTIF for companies controlled by the Group receives an individual target from the Board of Management – the fulfillment of this LTIF target flows into the assessments for the achievement of targets in each case. The companies can also set their own individual targets that go beyond those set by the Board of Management.

TOP

Key performance indicator

	2023	2022	Change in %	Forecast 2023
LTIF for companies controlled by the Group [1, 2, 3]	2.4	2.6	-7.7	2.1 – 2.3
LTIF overall [1, 2]	3.7	4.1	-9.8	3.5 – 3.7

1 LTIF indicates how many LTI occurred per one million working hours performed. Further information on the calculation of this performance indicator can be found on p. 34.
2 The LTIF for companies controlled by the Group excluding waste management and LTIF overall, which includes the area of waste management, only includes companies with more than 100 employees excluding external agency workers and contractors.
3 Newly fully consolidated companies are not included for a maximum transition period of three years.

The key performance indicator LTIF for companies controlled by the Group improved in the 2023 financial year and fell to 2.4. The average days of absence per accident increased slightly and stands at 13.8 (previous year: 13.1) for the companies controlled by the Group. This means that the severity of the accidents is almost unchanged. The LTIF overall – including our subsidiaries in the area of waste management – also fell in the reporting period to 3.7. The average days of absence per accident increased slightly – from 13.1 in the previous year to 14.2 days. Following the relatively poor figures in the previous year, due to among other things increased workloads due to the energy crisis, LTIF overall and LTIF for companies controlled by the Group are once again moving in the direction of the levels seen in 2020 and 2021.

There were no fatal accidents in the 2023 financial year, neither among our own employees nor employees of third-party companies working on behalf of the EnBW Group.

We also refer you to the details provided in the “Report on opportunities and risks” (p. 136↗).

Selected activities

Alongside the activities on a Group-wide level, individual companies have also been independently implementing other measures for achieving targets with respect to occupational safety:

In September 2023, the integrated management system for the areas of occupational safety, environment and energy at **Netze BW** was recertified in accordance with DIN EN ISO 14001, EMAS, DIN EN ISO 50001 and DIN ISO 45001. The concept phase of the “Occupational Safety Initiative 2.0” (InA 2.0), which aims to improve the occupational safety culture, was also concluded and a central safety committee was established after the completion of the pilot phase.

In the area of **conventional generation,** an external consultancy company was commissioned in 2023 to analyze the development of occupational safety at the various different sites. The measures derived as a result will now help to once more reduce the recent rise in the number of accidents. Furthermore, “Occupational Safety Days” were held again for employees at these sites. The “100 days without accidents” campaign also continued in the reporting year and this goal was achieved a total of eight times at different locations.

In the area of occupational health and safety, **EnBW Kernkraft (EnKK)** held training courses for employees and managers in 2023 to raise more awareness for the theme of resilience. One of the main focuses in 2023 was the further development of the exposure register in cooperation with EnBW.

Gesellschaft für nukleares Reststoffrecycling (GNR, company for the recycling of residual nuclear material) has introduced a tool for documenting employee qualifications using the Quentic software. In order to raise awareness for occupational safety, the “5 minutes for occupational safety” concept has been launched to enable teams to regularly discuss developments relevant to occupational safety.

EnBW Ostwürttemberg DonauRies (EnBW ODR) and its subsidiary **Netze ODR** continued its training campaign “Management responsibility to show leadership with respect to occupational safety” in 2023. The campaign was launched in the previous year in cooperation with the Employers Liability Insurance Association for Energy, Textile, Electrical and Media Products. Further training courses for managers were held as part of this campaign.

Valeco opened a discussion forum called “Safety minutes” in 2023 to promote the exchange of information about occupational safety at a management level and to support the development of sets of specialist instructions. A new tool for registering unsafe situations was also a main focus. In order to avoid accidents on the way to and from work, Valeco helped raise the awareness of its employees for occupational safety with a campaign on the theme of cycling. Furthermore, Valeco was certified as a “bicycle friendly employer” in this context.

Stadtwerke Düsseldorf (SWD) continued its “Personal drive” project at the company Netzgesellschaft Düsseldorf in 2023 with campaign days on the theme of electrical risks. In the “New Corporate Governance AS/GS” project, work started on the implementation of the measures developed for improving the control and management structure for occupational safety and health protection at SWD. Part of this work is to establish appropriate measures for transferring knowledge to managers. A new online form designed to act as an electronic log for recording small injuries was introduced in 2023. SWD’s activities in the area of occupational safety were rounded off by its “Safety Officer Day 2023,” which was held as part of the “RheinSchiene” project and attended by around 300 safety officers and guests.

Energiedienst (ED) introduced the occupational safety software “SAM” in 2023. It not only features various tools dealing with the theme of occupational safety but importantly also provides a better overview of any completed and pending training courses and briefings. The initiatives carried out in 2023 also included a rescue exercise at the Schwörstadt hydroelectric power plant in cooperation with the fire department and DLRG (German Lifeguard Association).

VNG held a variety of activities to promote occupational safety in the 2023 financial year. For example, the VNG subsidiary BALANCE Erneuerbare Energien started using the 6S lean method to evaluate its plants so that it will be able to guarantee a continuously high level of productivity and safety. VNG Gasspeicher had its integrated quality, environment, safety and health protection management system recertified in November 2023 and thus was once again able to show that it fulfills the requirements for DIN EN ISO 9001, ISO 14001 and ISO 45001.

At **Pražská energetika (PRE),** the main focus in the reporting year was placed on the further training of employees with respect to occupational safety. Employees were provided with updated training documents on how to handle certain chemicals and with training courses in accordance with the current legal requirements.

EU taxonomy

The European Commission presented the EU Green Deal in December 2019. It includes the target of reducing net emissions from greenhouse gases in the European Union to zero by 2050. A key element of the EU Green Deal is the EU taxonomy, a classification system used to define "environmentally sustainable" economic activities. The aim is to use defined requirements to classify economic activities EU-wide with respect to their contribution to six environmental objectives in order to encourage the development of sustainable financing products. The six environmental objectives are:

1. Climate change mitigation
2. Climate change adaptation
3. Sustainable use and protection of water and marine resources
4. Transition to a circular economy
5. Pollution prevention and control
6. Protection and restoration of biodiversity and ecosystems

The EU Taxonomy Regulation distinguishes between "taxonomy-eligible" and "taxonomy-aligned" activities:

- An activity is **taxonomy-eligible** if taxonomy criteria exist for the activity and it matches the taxonomy description of the activity, irrespective of whether it fulfills the criteria.
- An activity is **taxonomy-aligned** if it fulfills the taxonomy criteria for the activity. In this case, it makes a significant contribution to the respective environmental objective (fulfills the technical screening criteria), causes no significant harm to any of the other environmental objectives (fulfills the technical screening criteria to do no significant harm, DNSH) and observes and complies with the minimum safeguards for occupational safety and human rights.

Alongside the two previously reported environmental objectives "climate change mitigation" and "climate change adaptation," the reporting obligation this year also covers the other four environmental objectives "sustainable use and protection of water and marine resources," "transition to a circular economy," "pollution prevention and control" and "protection and restoration of biodiversity and ecosystems" for the first time.

The formulations and terms contained in the EU taxonomy are subject to uncertainty with respect to their interpretation and need further clarification. Our own interpretation is presented below: The EU Taxonomy Regulation requires the presentation of the proportions of total revenue generated by a company that are achieved using products and services associated with taxonomy-aligned economic activities and thus make a substantial contribution to the environmental objectives. EnBW believes that it is appropriate to allocate expenditure related to assets or processes associated with taxonomy-aligned economic activities to capex and opex if the measures relevant to capex and opex are implemented such that the technical screening criteria and minimum safeguards are fulfilled. In terms of our fuel switch projects, our assumption at the present time is that these plants will be taxonomy-aligned. However, it will only be possible to assess final compliance with the technical screening criteria at a later point in the implementation of these projects. Associated investment will thus be reported as part of a capex plan.

EU Regulation 2021/2139 that defines the criteria for evaluating whether an economic activity makes a substantial contribution to "climate change mitigation" or "climate change adaptation" was amended in 2023. The existing technical screening criteria were modified in this regard and new climate-related economic activities and associated technical screening criteria were added in EU Regulation 2023/2485. Companies are only obligated to carry out an evaluation of the taxonomy eligibility of these activities for the 2023 financial year. The same applies to the disclosure obligations with respect to environmental objectives 3 to 6. According to the Environmental Delegated Act adopted this year, companies are only obligated to disclose the revenue, capex and opex for this reporting year that are taxonomy-eligible in the sense of the four other environmental objectives.

Further information on our **experiences with applying the EU sustainable finance taxonomy** can be found here.

Online ↗

Implementation of the EU Taxonomy Regulation in the EnBW Group

We have accompanied and supported the development and introduction of the taxonomy from the very beginning. In particular, this included our participation in related expert groups and our reporting on selected taxonomy-aligned economic activities in the EnBW Group at an early stage for the 2020 financial year.

Since the 2021 financial year, we have already been reporting in full on the taxonomy alignment of our activities based on all of the final taxonomy criteria that were available at the time the Integrated Annual Report was prepared, insofar as it was possible to report on them and uncertainties with respect to the interpretation of the criteria have been removed. We reported on the obligatory key performance indicators revenue, capex and opex as well as voluntarily publishing information on the other performance indicators that are relevant to the ongoing management of the EnBW Group: adjusted EBITDA and capex including the proportion for entities accounted for using the equity method (expanded capex).

Full information on the taxonomy-eligible and taxonomy-aligned economic activities according to Annex II of the delegated act for the EU taxonomy can be found on p. 147 ff.↗. The templates for the activities in the areas of nuclear energy and fossil gaseous fuels are presented below (p. 151 ff.↗).

Activities examined for the EU Taxonomy Regulation

Smart Infrastructure for Customers

- E-mobility

System Critical Infrastructure

- Electricity distribution grids
- Electricity transmission grids
- Water grids
- Water supply
- Gas distribution grids
- Gas transmission grids

Sustainable Generation Infrastructure

- Onshore wind
- Offshore wind
- Solar
- Run-of-river
- Biomass
- Pumped storage
- District heating
- Electricity generation from gas
- Combined heat and power

We only report on activities that are taxonomy-eligible with respect to the EU's environmental objective of "climate change mitigation." Based on the EnBW business model, no activities could be identified that are taxonomy-eligible with respect to the EU's environmental objectives "climate change adaptation," "sustainable use and protection of water and marine resources," "transition to a circular economy," "pollution prevention and control" and "protection and restoration of biodiversity and ecosystems."

Economic activities that could potentially be allocated to the environmental objective "climate change mitigation" and another environmental objective (e.g., the water grids) were allocated to the environmental objective "climate change mitigation." The reason for this is that the contribution made to reducing greenhouse gas emissions was defined as the more relevant environmental contribution and is also closely associated with the EnBW corporate strategy.

The new climate-related economic activities and modified technical screening criteria published by the EU in the 2023 financial year were also analyzed for their relevance to EnBW. The amendments to Annex I and II of Delegated Regulation (EU) 2023/2485 require neither a change to the current evaluation of the taxonomy eligibility or alignment of EnBW's climate-related economic activities nor do they necessitate the addition of new taxonomy-eligible economic activities in the EnBW reporting.

The taxonomy alignment of the economic activities listed above was derived – using the findings from previous years as a basis – by determining that they fulfilled the taxonomy criteria. This was carried out by a central project team, working together with relevant experts from the specialist departments in the EnBW Group. We describe our fundamental approach to the analysis of the taxonomy alignment of our taxonomy-eligible economic activities below. A description of the activity and an overview of how they fulfill the respective technical screening criteria for a substantial contribution to climate change mitigation and do no significant harm to other EU environmental objectives is provided in table form at the end.

Firstly, each taxonomy-eligible business activity was assessed individually to see whether it complies with the criteria for making a substantial contribution to climate change mitigation. This assessment was carried out in principle at the level of the respective plant, insofar as the substantial contribution to climate change mitigation was not considered to have been complied with by the individual activities per se.

No significant harm to the other EU environmental objectives

In the next step, we assessed whether any significant harm was being done to the other five environmental objectives ("climate change adaptation," "sustainable use and protection of water and marine resources," "transition to a circular economy," "pollution prevention and control" and "protection and restoration of biodiversity and ecosystems"). The results of the DNSH criteria assessment for each economic activity can be found in the table (p. 110 ff.↗).

Compliance with minimum safeguards

The **EnBW Declaration on Human Rights** is available to download in PDF format.

Online ↗

In the third and final step, we assessed the economic activities at a Group level with respect to their compliance with the minimum social safeguards for human rights and occupational safety (prequalification process [p. 52 f.↗], information on occupational safety [p. 104 ff.↗] and the "Report on opportunities and risks" [p. 130 ff.↗]).

Identifying and classifying economic activities

The **technical screening criteria for the EU taxonomy** can be found here.

Online ↗

In the following table, taxonomy alignment is derived at the level of the respective activity. Each activity was initially assessed to see whether it made a substantial contribution to climate change mitigation. In the second step, the activity was analyzed to see whether it did any significant harm to the achievement of the other EU environmental objectives. The analysis of whether the activity could potentially do harm to the second environmental objective "climate change adaptation" was carried out centrally at a Group level in cooperation with the risk management department (p. 135 f.↗). At the same time, appropriate measures were taken to further develop climate risk management throughout the entire Group in the future and also integrate it into the decentralized structures. This is why the following table focuses on the environmental objectives 3 to 6. The activities for which a closer examination of the environmental objectives is necessary are to be found in the respective technical screening criteria.

Economic activities according to the EU taxonomy and a description of the activity	Substantial contribution to climate change mitigation	No significant harm to the EU environmental objectives 3 to 6 (insofar as the criteria are relevant)
4.1 Electricity generation via photovoltaic technology → Construction and operation of solar parks to generate electricity **4.3 Electricity generation from wind power** → Construction and operation of wind farms to generate electricity	• In the case of photovoltaic and wind activities and with respect to the requirement for a substantial contribution to climate change mitigation, it is not currently necessary to test compliance with any criteria because energy generation of this type will always remain significantly below the current threshold of 100 g CO_2eq/kWh, even when analyzed over the entire life cycle.	• The vast majority of components for photovoltaic and wind energy power plants are designed for a very long service life, are recyclable and have a residual value at the end of their period of use (steel, aluminum, copper). • These plant components can either be recycled within the EnBW Group or sold to third parties for further use. • Environmental impact assessments (EIA) are carried out in accordance with the legal regulations.
4.5 Electricity generation from hydropower [1] → Construction and operation of run-of-river power plants to generate electricity	• Hydropower plants make an important contribution to climate change mitigation due to their very low greenhouse gas intensity. • The reference values from the German Environment Agency (UBA) were used as the basis for assessing the substantial contribution of run-of-river power plants, which at 2.702 g CO_2eq/kWh lie significantly below the taxonomy threshold of a maximum of 100 g CO_2eq/kWh. • These plants thus comply with the wording of the requirements for economic criteria 4.5 because compliance with the taxonomy threshold for the life cycle emissions could be verified using the UBA reference values. • The publication of the reference values by the UBA complies with the requirements (which are not specified in more detail) for "verification" by an independent third party, especially as the values are not determined by EnBW.	• Prior to the process for reissuing expired permits in accordance with water law, a preliminary environmental impact assessment must be carried out. Depending on the results of this assessment, it may be necessary to subsequently complete an environmental impact assessment. • The obligatory implementation of the requirements in the European Water Framework Directive is key, both for the award of new permits according to water law and also potentially at any time when the authorities subsequently issue official directives for existing permits. • Potential mitigation measures, such as fish ladders that enable fish to descend the river, are implemented in agreement with the responsible authorities subject to appropriate deadlines.
4.9 Transmission and distribution of electricity → Construction and operation of transmission and distribution grids for electricity	• The electricity grids make a substantial contribution to climate change mitigation because they are part of the synchronous grid of continental Europe (transmission grid) or its downstream grids (distribution grids). • The distribution grid in Germany also fulfills the criteria that the majority of the connections made in the past five years were for renewable energies.	• A waste management plan is in place that ensures maximal reuse or recycling at end of life in accordance with the waste hierarchy. • Legal regulations are complied with when constructing overground power lines. • Compliance with the 26th Federal Immission Control Ordinance (BImSchV) ensures fulfillment of the criteria for electromagnetic radiation. • No oils containing PCBs are used in new equipment. The process to replace oils containing PCBs in old equipment was concluded at the beginning of the 1990s. • Environmental impact assessments are carried out in accordance with the legal regulations.
4.10 Storage of electricity [1] → Construction and operation of pumped storage power plants for the storage of electricity	• There are no criteria that must be assessed with respect to a substantial contribution to climate change mitigation for pumped storage activities.	• The same procedure is followed as for run-of-river power plants when the process to reissue expired permits according to water law is pending. The same applies to the implementation of the requirements in the European Water Framework Directive and corresponding mitigation measures. • A waste management plan is in place that ensures maximal reuse or recycling at end of life in accordance with the waste hierarchy.
4.13 Manufacture of biogas and biofuels for use in transport and of bioliquids [1] → Manufacture of biogas for feeding into the gas grid and operation of CHP power plants with bioenergy	• Agricultural biomasses that comply with the sustainability requirements in EU Directive 2018/2001 are used to produce the biogas. Among other things, environmental surveys are carried out for this purpose. • The criterion that no food or feed crops may be used for activity 4.13 only applies to the production of biofuels according to article 2 no. 33 Renewable Energy Directive and not to the production of biogas in general (article 2 no. 28 Renewable Energy Directive). • The greenhouse gas emission savings (depending on the production route) are at least 65% in comparison to the relative fossil fuel comparator set out in Annex V of EU Directive 2018/2001. • If processes for the anaerobic digestion of organic materials are used in the plants, the biogas is only used for specific purposes. Monitoring and contingency plans are also in place to minimize methane leakage.	• In order to do no significant harm to the environmental objectives "sustainable use and protection of water and marine resources" and "protection and restoration of biodiversity and ecosystems," there are structural safety measures in place to prevent any pollution of groundwater. • General preliminary assessments are also carried out to determine whether the activity is subject to an environmental impact assessment. As this activity is not subject to an EIA, the responsible authorities believe that there is no significant negative impact on the environment. • Biogas power plants are not constructed in sensitive ecological areas. Bodies representing the public interest can raise their concerns in the resolution procedure for the submitted building applications. • Pollution prevention and control is ensured by compliance with the legal regulations. In addition, the best available technology is used for any replacement investment.

1 The KPIs for activities 4.5 and 4.10 and for 4.13 and 4.20 are combined in each case.

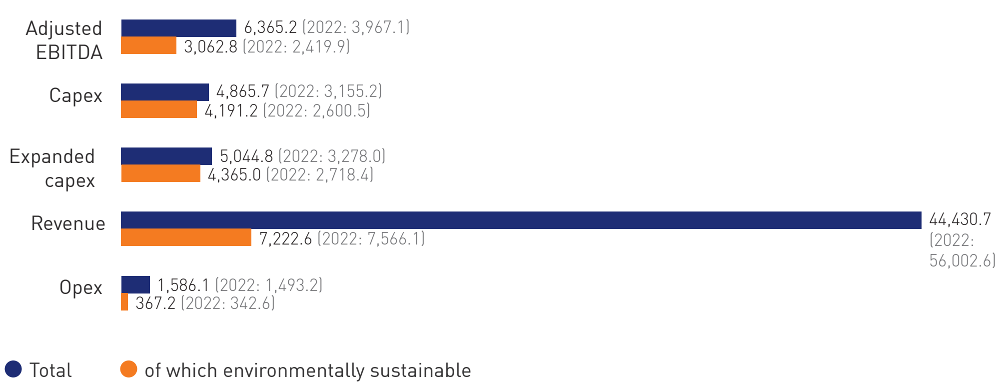
Economic activities according to the EU taxonomy and a description of the activity	Substantial contribution to climate change mitigation	No significant harm to the EU environmental objectives 3 to 6 (insofar as the criteria are relevant)
4.14 Transmission and distribution networks for renewable and low-carbon gases → Construction and operation of gas grids	• This criteria set covers investment in new grids for the transport of hydrogen and other low-carbon gases, as well as investment in existing grids to increase the blend of hydrogen or other low-carbon gases in the gas system.	• The criteria for energy-efficient components are complied with by using the best available technology according to the latest standards for the new construction and repair of the gas grid. In particular, this includes the pipelines, fittings and leakage monitoring systems. • Environmental impact assessments are carried out in accordance with the legal regulations.
4.15 District heating/cooling distribution → Construction and operation of district heating grids	• The district heating grids make a substantial contribution to climate change mitigation because they use more than 50% renewable energies, 50% waste heat, 75% CHP heat or 50% of a combination of these energies and heats and are thus classified as efficient according to the EU regulations.	• The district heating grid has no impact on water bodies during normal operation. In the event of a leakage, the damaged section is separated locally from the rest of the grid using fittings. The technology does not allow for the emptying of the district heating water into water bodies. • The criteria for energy-efficient components are complied with by using the best available technology according to the latest standards for the new construction and repair of the district heating grids. In particular, this includes the pipelines, fittings and leakage monitoring systems. • Environmental impact assessments are carried out in accordance with the legal regulations.
4.20 Cogeneration of heat/cool and power from bioenergy[1] → Operation of biogas CHP power plants to generate electricity and heat	• The agricultural biomass used in the activity complies with the criteria laid down in EU Directive 2018/2001. Among other things, sustainability certificates are obtained for this purpose. • Forest biomass, sewage sludge and biowaste are not used and thus it is not necessary to assess any criteria in this area. • The greenhouse gas emission savings from the use of biomass in the combined heat and power plants is at least 80% in relation to the GHG emission-saving methodology and fossil fuel comparator set out in Annex VI to EU Directive 2018/2001.	• As is the case for the manufacture of biogas and biofuels, structural safety measures, in particular, are in place to prevent any pollution of the groundwater. • The process for carrying out EIAs is the same as for the manufacture of biogas and biofuels. • Biogas power plants are not constructed in sensitive ecological areas. Bodies representing the public interest can raise their concerns in the resolution procedure for the submitted building applications. • Pollution prevention and control is ensured by compliance with the legal regulations. In addition, the best available technology is used for any replacement investment.
4.29 Electricity generation from fossil gaseous fuels → Construction and operation of gas power plants to generate electricity	• Direct GHG emissions of the activity averaged over 20 years are 160 to 549 kg CO_2eq/kW depending on the scenario and are thus lower than 550 kg CO_2eq/kW of the power plant's capacity. • The combined cycle gas turbine (CCGT) power plants compensate for shortfalls in the electricity supply from renewable energies and ensure the security of supply. The new power plants are replacing hard coal power plants. The aim is to switch over 100% to hydrogen by 2035 at the latest. A mix with biogases is not planned. • The generation capacities do not exceed the capacity of the previously installed power plants by more than 15%. • The power plants are located in Germany. The Federal Republic of Germany has made the commitment to phase out coal-fired generation by 2038 so that the requirements in the EU taxonomy for these activities are fulfilled. • Measurement equipment to monitor physical emissions is installed in accordance with the legal regulations.	• Preliminary assessments are carried out to determine whether the activity is subject to an environmental impact assessment and any subsequent EIAs are carried out where necessary in a project-specific manner in accordance with the Environmental Impact Assessment Act (UVPG). Otherwise, the respective projects are not approved. • The BAT conclusions (BAT is the abbreviation for best available techniques) from the EU have been transposed into German law. All of the planned power plants comply with limits at least in line with requirements in the currently valid version of the 13th BImSchV and thus also the BAT conclusions.

1 The KPIs for activities 4.5 and 4.10 and for 4.13 and 4.20 are combined in each case.

Economic activities according to the EU taxonomy and a description of the activity	Substantial contribution to climate change mitigation	No significant harm to the EU environmental objectives 3 to 6 (insofar as the criteria are relevant)
4.30 High-efficiency co-generation of heat/cool and power from fossil gaseous fuels → Construction and operation of CHP power plants	• The activity achieves primary energy savings of at least 10% compared with the reference values for the separate production of heat and electricity. Direct GHG emissions are 234 to 252 g CO_2eq/kWh of energy output. • The CCGT power plants compensate for shortfalls in the electricity supply from renewable energies and ensure the security of supply. The new power plants are replacing hard coal power plants. The aim is to switch over 100% to hydrogen by 2035 at the latest. A mix with biogases is not planned. • The generation capacities do not exceed the capacities of the previously installed power plants. • A reduction in GHG emissions during the life cycle and in comparison to the previously installed hard coal power plants of 55% is achieved. • The power plants are located in Germany. The Federal Republic of Germany has made the commitment to phase out coal-fired generation by 2038 so that the requirements in the EU taxonomy for these activities are fulfilled. • Measurement equipment to monitor physical emissions is installed in accordance with the legal regulations.	• Preliminary assessments are carried out to determine whether the activity is subject to an environmental impact assessment and any subsequent EIAs are carried out where necessary in a project-specific manner in accordance with the Environmental Impact Assessment Act (UVPG). Otherwise, the respective projects are not approved. • The BAT conclusions from the EU have been transposed into German law. All of the planned power plants comply with limits at least in line with requirements in the currently valid version of the 13th BImSchV and thus also the BAT conclusions.
5.1 Construction, extension and operation of water collection, treatment and supply systems → Construction and operation of water grids	The net average energy consumption of the water grids operated by the EnBW Group is lower than 0.5 kWh/m^3 of water.	• The water passing through the grid complies with the requirements of the Drinking Water Ordinance and is monitored by the authorities – the criteria in this ordinance are stricter than those in the taxonomy. • Environmental impact assessments are carried out in accordance with the legal regulations.
6.15 Infrastructure enabling low-carbon road transport and public transport → Construction and operation of charging infrastructure for e-vehicles	There are no criteria that must be assessed with respect to a required substantial contribution to climate change mitigation for activities related to charging infrastructure for e-vehicles.	• Water is only found at our sites in the form of rainwater. We do not use any surface waters nor do we extract any groundwater. • The construction of charging infrastructure for e-vehicles is not included in the activities subject to an environmental impact assessment in Annex 1 to the Environmental Impact Assessment Act (UVPG): Legislators apparently assume that these activities per se do not do any significant harm to ecosystems and biodiversity. An EIA can be requested during the official approval process, although this has never occurred up to now.

The following graphic provides an overview of the proportions of the adjusted EBITDA, capex, extended capex, revenue and opex accounted for by the taxonomy-aligned economic activities:

Proportion of taxonomy-aligned economic activities of the EnBW Group in € million[1]



1 The figures for the previous year have been restated.

The following proportions were determined:

KPIs for the taxonomy-aligned business activities of the EnBW Group 2023

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Adjusted EBITDA	6,365.2	3,062.8/48.1	51.2/0.8	3,251.2/51.1
Capex	4,865.7	4,191.2/86.1	2.9/0.1	671.6/13.8
Expanded capex	5,044.8	4,365.0/86.5	2.9/0.1	676.9/13.4
Revenue	44,430.7	7,222.6/16.3	555.6/1.3	36,652.5/82.5
Opex	1,586.1	367.3/23.2	2.5/0.2	1,216.3/76.7

KPIs for the taxonomy-aligned business activities of the EnBW Group 2022[1]

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Adjusted EBITDA	3,967.1	2,419.9/61.0	247.4/6.2	1,299.8/32.8
Capex	3,155.2	2,600.5/82.4	2.5/0.1	552.2/17.5
Expanded capex	3,278.0	2,718.4/82.9	2.5/0.1	557.1/17.0
Revenue	56,002.6	7,566.1/13.5	1,639.5/2.9	46,797.0/83.6
Opex	1,493.2	342.6/22.9	2.5/0.2	1,148.1/76.9

1 The figures for the previous year have been restated.

Proportion of taxonomy-aligned adjusted EBITDA in the segments 2023

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	239.5	-27.0/-11.3	0.0/0.0	266.5/111.3
System Critical Infrastructure	1,772.0	1,350.0/76.2	0.0/0.0	422.0/23.8
Sustainable Generation Infrastructure	4,647.6	1,739.8/37.4	51.2/1.1	2,856.6/61.5

Proportion of taxonomy-aligned adjusted EBITDA in the segments 2022[1]

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible but not taxonomy-aligned economic activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	498.4	-50.6/-10.2	0.0/0.0	549.0/110.2
System Critical Infrastructure	1,057.8	781.2/73.9	0.0/0.0	276.6/26.1
Sustainable Generation Infrastructure	2,612.2	1,689.3/64.6	247.4/9.5	679.5/26.0

1 The figures for the previous year have been restated.

Proportion of taxonomy-aligned expanded capex in the segments 2023

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible business activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	458.2	183.3/40.0	0.0/0.0	274.9/60.0
System Critical Infrastructure	2,754.5	2,664.2/96.7	0.0/0.0	90.3/3.3
Sustainable Generation Infrastructure[1]	1,755.2	1,517.5/86.5	2.9/0.2	234.8/13.4

1 The figures may not add up due to rounding differences.

Proportion of taxonomy-aligned expanded capex in the segments 2022[1]

in € million/in %	Total	Proportion of taxonomy-aligned business activities	Proportion of taxonomy-eligible business activities	Proportion of taxonomy non-eligible business activities
Smart Infrastructure for Customers	404.9	174.1/43.0	0.0/0.0	230.8/57.0
System Critical Infrastructure	2,005.8	1,926.4/96.0	0.0/0.0	79.4/4.0
Sustainable Generation Infrastructure	821.4	617.9/75.2	2.5/0.3	201.0/24.5

1 The figures for the previous year have been restated.

The adjusted EBITDA from taxonomy-aligned activities was €3,062.8 million and thus significantly higher than in the previous year. Despite the exceptionally high result in the area of Generation and Trading in 2023, the proportion of adjusted EBITDA for the Group accounted for by taxonomy-aligned activities was almost 50%. The adjusted EBITDA from taxonomy-aligned activities in the Smart Infrastructure for Customers segment was slightly improved in comparison to the previous year but remains comparatively low because the e-mobility business area is still being developed. The adjusted EBITDA from taxonomy-aligned activities in the System Critical Infrastructure segment increased to €1,350.0 million. This was mainly due to the substantial increase in revenue from the use of the grids as part of the higher investment in the expansion of the grids and from factoring in the higher expenses for the grid reserve and redispatch into prices. The proportion of adjusted EBITDA for the System Critical Infrastructure segment accounted for by taxonomy-aligned activities of 76.2% was slightly higher than the level in the previous year. The adjusted EBITDA from taxonomy-aligned activities in the Sustainable Generation Infrastructure segment of €1,739.8 million was higher than the level in the previous year. This was attributable to the positive earnings performance at the run-of-river power plants and pumped storage power plants, as well as the expansion in wind farms and photovoltaic power plants. The proportion of adjusted EBITDA for this segment accounted for by taxonomy-aligned activities of 37.4% was below the level in the previous year due to the exceptionally high result in the area of Generation and Trading.

The capex for taxonomy-aligned activities was €4,191.2 million and the proportion of capex accounted for by taxonomy-aligned activities was 86.1%, which was around 61% higher (about €1.6 billion) than the figure for the previous year. Almost half of this increase (around 46%) was attributable to higher investment in the electricity transmission and distribution grids. The investment made by our Group subsidiary TransnetBW as part of the Network Development Plan Electricity was higher, as was the investment in our electricity distribution grids made by our grid companies. Around 34% of the increase was attributable to the activity “electricity generation from wind power.” In the area of offshore wind power, we invested heavily in our He Dreiht wind farm in the German North Sea in 2023. This wind farm is due to be commissioned in 2025. Around 18% of the increase was attributable to investment in our three fuel switch projects in Baden-Württemberg, which as things currently stand fulfills the EU criteria for a taxonomy-aligned activity.

The proportion of expanded capex for the Smart Infrastructure for Customers segment accounted for by taxonomy-aligned activities stood at 40.0% (previous year: 43.0%) and is thus relatively low because there are still no criteria in the EU taxonomy for many business activities, such as for the sale of commodities. The proportion in the System Critical Infrastructure segment of 96.7% was at the same level as in the previous year (96.0%) and relatively high because the electricity, gas and water grids, which account for almost the entire segment, comply with the EU taxonomy criteria. In the Sustainable Generation Infrastructure segment, the proportion of 86.5% was thus higher than in the previous year (75.2%). The activities in the Renewable Energies area are fully taxonomy-aligned as in the previous year. The increase in this proportion is mainly attributable to the investment for our three fuel switch projects in Baden-Württemberg, which was higher in 2023 than in the previous year. The proportion of expanded capex accounted for by taxonomy-aligned activities was 86.5% based on the total investment by the EnBW Group in the context of the EU taxonomy.

Revenue from taxonomy-aligned activities of €7,222.6 million in 2023 was slightly lower than in the previous year. This development was primarily due to lower income from the settlement of redispatch measures with other transmission system operators in the System Critical Infrastructure segment that has no impact on the result. The proportion of total revenue accounted for by taxonomy-aligned activities increased slightly in comparison to 2022 to 16.3% because Group revenue from trading activities was lower than in the previous year, mainly as a result of lower prices on the electricity and gas markets.

The opex for taxonomy-aligned activities of €367.3 million was slightly higher than the figure in the previous year. Expenditure on maintenance and repair services was almost unchanged in comparison to 2022.

Accounting policies

The proportion of sustainable **investment (capex)** predominantly refers to assets associated with taxonomy-aligned activities. In contrast to cash-relevant investment reported in the investment analysis section of the report (p. 80 f.↗), non-cash-relevant activities are also relevant for taxonomy reporting. In accordance with our current interpretation, investment in our fuel switch projects, which are assigned to the economic activities 4.29 and 4.30 and make a contribution to the environmental objective of climate change mitigation, has been included in a capex plan and is reported separately below. The planned investment for these projects was defined using our investment approval process (p. 36↗) and was presented to the Board of Management for approval. However, the taxonomy alignment of the power plants can only be verified following an evaluation of all of the technical screening criteria as the project progresses. The investment measures have a planning horizon of six years. The expected level of investment in the period 2022 to 2027 is €1.7 billion, of which a total of €0.4 billion has been invested up to now. To calculate the percentages, investment is included according to the following IFRS standards:

- Additions to property, plant and equipment (IAS 16)
- Additions to intangible assets (IAS 38)
- Additions to investment property (IAS 40)
- Additions to right-of-use assets from leases (IFRS 16)

The numerator for investment taken into account according to the taxonomy comprises the following:

Composition of the capex numerator

in € million	2023	2022
Additions to property, plant and equipment [1, 2]	**3,929.4**	2,316.5
of which additions as part of a capex plan	**(348.7)**	(60.9)
Additions to intangible assets	**81.7**	123.9
Additions to right-of-use assets from leases [2]	**162.0**	150.4
Additions to property held as a financial investment	**0.0**	0.0
Additions resulting from business combinations	**18.1**	9.7
Total	**4,191.2**	**2,600.5**

1 This includes additions to provisions recognized for the decommissioning and dismantling of property, plant and equipment in the reporting period of €12.4 million (31/12/2022: €34.1 million).
2 The figures for the previous year have been restated.

The capex figures for the comparative period have been adjusted due to changes in the segment reporting (p. 69↗) and additions to right-of-use assets from leases according to IFRS 16.

The additions to calculate the denominator can be found in notes 10 (without consideration of the column "Goodwill"), 11, 12 and 14 (column for "Investment properties") of the notes to the consolidated financial statements.

To determine the KPI for sustainable **revenue,** the net revenue that makes a contribution to the environmental objective of climate change mitigation is divided by the total net revenue for the Group. Further information on net revenue can be found in the section on external revenue on p. 70 f.↗ and in note 1 of the notes to the consolidated financial statements.

Composition of the revenue numerator

in € million	2023	2022
Revenue from contracts with customers	6,792.0	7,231.6
Other revenue	430.6	334.5
Total	**7,222.6**	**7,566.1**

The denominator to determine the KPI for **opex** in the sense of the Taxonomy Regulation comprises the following direct, non-capitalized costs:

- Research and development
- Building renovation measures
- Short-term leases
- Maintenance and repair costs

The numerator equals the part of the opex that is related to assets or activities associated with taxonomy-aligned economic activities. The expenditure included in the denominator covers the expenditure categories presented in the following table. The numerator for calculating the opex KPI is determined as follows:

Composition of the opex numerator

in € million	2023	2022
Maintenance and repair costs [1]	365.9	341.5
Short-term leases (not recognized as right-of-use assets)	0.9	0.7
Research and development costs	0.5	0.4
Total	**367.3**	**342.6**

1 Includes building renovation measures.

As well as the KPIs required by the Taxonomy Regulation, we are also voluntarily reporting information on the environmentally sustainable **adjusted EBITDA** and **capex including the proportion for entities accounted for using the equity method** pursuant to IFRS 11 and IAS 28 **(expanded capex).** The sustainable adjusted EBITDA is the proportion of total adjusted EBITDA that makes a contribution to the environmental objective of climate change mitigation (p. 71 f.↗). With this KPI, we can create a direct link to our key performance indicator adjusted EBITDA that is relevant for the management of the company. Detailed information on this performance indicator can be found in the section on adjusted EBITDA on p. 71 f.↗.

By reporting the expanded capex, we are disclosing all of our sustainable investment, irrespective of whether it is made within the EnBW Group. The numerator for the KPI for expanded capex is determined by taking the capex numerator from the Taxonomy Regulation and expanding it to include additions for entities accounted for using the equity method, whereby sustainable additions from acquisitions and capital increases are taken into account:

Composition of the expanded capex numerator [1]

in € million	2023	2022
Capex numerator according to EU taxonomy	4,191.2	2,600.5
Additions to entities accounted for using the equity method	173.8	117.9
Total	**4,365.0**	**2,718.4**

1 The figures for the previous year have been restated.

EnBW AG

The financial statements of EnBW AG have been prepared in accordance with the regulations in the German Commercial Code (HGB), the German Stock Corporation Act (AktG) and the law governing the electricity and gas industries in Germany (German Energy Industry Act – EnWG). The regulations for large corporations apply.

The financial statements as audited by EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft, as well as the management report of EnBW AG contained in the Group management report, will be published in the company register.

The full **financial statements of EnBW AG** are available to download on our website.

Online ↗

For statements that are necessary to understand the position of EnBW AG and that are not explicitly described in the following sections, especially those relating to the strategy of the company and economic and political conditions, please refer to the information provided for the EnBW Group (p. 26 ff.↗ and p. 58 ff.↗).

The annual net profit, which indicates the company's ability to pay a dividend, is an important performance indicator for EnBW AG.

Results of operations of EnBW AG

Condensed income statement of EnBW AG

in € million[1]	2023	2022	Change in %
Revenue	116,487.0	134,746.7	-13.6
Cost of materials	-111,978.5	-132,374.8	-15.4
Amortization and depreciation	-230.0	-201.9	13.9
Other operating result	-1,564.1	-762.2	-105.2
Earnings before interest and taxes	**2,714.4**	**1,407.8**	**92.8**
Financial result	-457.6	-108.1	–
Tax	-656.4	-326.4	-101.1
Net profit	**1,600.4**	**973.3**	**64.4**

1 In accordance with German commercial law.

EnBW AG reported an annual net profit of €1,600.4 million. The improvement in comparison to the previous year was mainly influenced by the €1,306.6 million in higher earnings before interest and taxes, the decrease in the financial result of €349.5 million and the decrease in the tax result of €330.0 million.

Earnings before interest and taxes of EnBW AG is primarily determined by the revenues generated from electricity and gas sales, as well as by the associated cost of materials. The decrease in revenue of €18,259.7 million was offset by a decrease in the cost of materials of €20,396.3 million.

Revenue (after the deduction of electricity and energy taxes) of €116,487.0 million primarily includes revenue from electricity sales of €24,821.0 million and gas sales of €88,750.9 million. Electricity and gas sales comprise both the trading business, involving deliveries to trading partners and stock exchanges, and sales activities in the form of the direct delivery of energy to end customers.

The trading business recorded a decrease of €18,961.3 million in revenue in 2023 to €112,728.0 million. While gas revenues fell as a result of lower trading volumes, electricity revenues increased despite lower volumes due to higher prices secured on the markets. The decrease overall in revenue in the trading business was offset by the fall in the cost of materials of €20,564.7 million to a total of €109,187.7 million.

Revenues from sales activities were split into €1,902.4 million for electricity and €408.7 million for gas, which represented an overall increase of €314.0 million.

In the retail and end-customer sector (B2C), sales were lower than the level in the previous year, which was mainly attributable to conditions in the energy industry and the associated energy-saving measures actively taken by customers. Electricity sales fell by 0.4 billion kWh to 6.0 billion kWh, while sales in the gas business fell by 0.5 billion kWh to 3.5 billion kWh. Increased revenues in both the B2C electricity and B2C gas sectors were primarily due to price effects resulting from the market situation in the reporting year.

The cost of materials includes costs for electricity procurement of €20,966.0 million and costs for gas procurement of €86,838.8 million.

Alongside scheduled amortization and depreciation, the amortization and depreciation item includes impairment losses of €17.9 million, which relate to intangible assets.

The decrease in the other operating result was primarily attributable to reversals of impairment losses made in the previous year, which amounted to €1,018.7 million, and not made in the reporting year and a fall in income from reversals of provisions of €79.3 million, which was mainly related to provisions for onerous contracts for electricity procurement agreements. In addition, rents for gas transport increased by €154.4 million, expenses for gas storage facilities increased by €68.3 million and impairments on receivables increased by €118.3 million. This was offset to some extent by an increase in income from the disposal of assets of €511.2 million. EnBW sold minority shareholdings in He Dreiht GmbH & Co. KG and EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG, which holds 100% of the shares in TransnetBW GmbH. In addition, there was a drop in services provided by foreign subsidiaries for the trading activities of EnBW AG.

The decrease in the financial result was mainly due to higher impairment losses on financial assets of €1,009.9 million and higher interest expenses for affiliated entities of €159.2 million. This was offset to some extent by the improved investment result in particular.

The tax expense in the financial year was €656.4 million, which was €330.0 million higher than in the previous year. The taxes mainly comprise expenses for advance income tax payments of €233.2 million, additions to the provisions for corporate income tax and trade tax of €145.0 million and reversals of provisions for tax audit risks of €23.6 million. The tax result also includes out-of-period expenses for income taxes of €20.7 million, compared to out-of-period income for income taxes of €46.5 million in the previous year. The option of recognizing a surplus of deferred tax assets was not exercised.

Net assets of EnBW AG

Balance sheet of EnBW AG

in € million[1]	31/12/2023	31/12/2022	Change in %
Assets			
Non-current assets			
Intangible assets	277.4	313.6	-11.5
Property, plant and equipment	1,384.8	1,050.0	31.9
Financial assets	25,735.8	26,869.7	-4.2
	27,398.0	28,233.3	-3.0
Current assets			
Inventories	1,846.9	2,340.0	-21.1
Receivables and other assets	5,796.9	7,288.0	-20.5
Securities	230.0	0.0	–
Cash and cash equivalents	6,457.2	3,142.5	105.5
	14,331.0	12,770.5	12.1
Prepaid expenses	4,674.3	6,744.7	-30.7
Surplus from offsetting	47.1	31.9	47.6
	46,450.4	47,780.4	-2.8
Equity and liabilities			
Equity			
Subscribed capital	708.1	708.1	–
Treasury shares	-14.7	-14.7	–
Issued capital	(693.4)	(693.4)	–
Capital reserve	776.0	776.0	–
Revenue reserves	2,822.5	2,022.5	39.6
Retained earnings	1,155.4	652.9	77.0
	5,447.3	4,144.8	31.4
Extraordinary items for investment cost subsidies and grants	24.0	25.9	-7.3
Provisions	14,903.6	15,149.9	-1.6
Liabilities	21,118.8	23,203.2	-9.0
Deferred income	4,956.7	5,256.6	-5.7
	46,450.4	47,780.4	-2.8

1 In accordance with German commercial law.

The net assets of EnBW AG as of 31 December 2023 are significantly influenced by the non-current assets (particularly the financial assets) and receivables and other assets as well as cash and cash equivalents. These are mostly offset by liabilities and provisions relating to nuclear power and for pensions and similar obligations.

Financial assets primarily consist of shares in affiliated entities of €17,622.9 million, loans to affiliated entities of €3,333.4 million, securities held as non-current assets of €2,717.1 million and investments of €2,054.5 million. The decrease of €1,133.9 million in financial assets was mainly due to amortization and depreciation of €1,144.3 million. In addition, EnBW sold minority shareholdings in He Dreiht GmbH & Co. KG and EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG, which holds 100% of the shares in TransnetBW GmbH. This was offset to some extent by payments into the capital reserves at shares in affiliated entities and the issuing of loans to affiliated entities of €658.4 million.

Trade receivables of €1,416.5 million mainly comprise receivables from trading activities and consumption accruals for electricity and gas deliveries not yet invoiced.

Receivables from affiliated entities increased by €478.2 million to €2,484.0 million. They mostly comprise receivables from intercompany settlement transactions as part of the centralized financial and liquidity management, as well as claims from profit and loss transfer agreements and short-term loans.

The decrease in other assets by €1,476.2 million to €1,852.8 million was mainly attributable to a decrease in the collateral to stock markets and trade partners of €1,790.3 million due to changes in market prices and a corresponding adjustment to the hedge strategy. As part of the sale of minority shareholdings in EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG, which holds 100% of the shares in TransnetBW GmbH, the majority of the proceeds were paid in cash and cash equivalents. The remaining payment will be made by 2028 at the latest.

Cash and cash equivalents of EnBW AG totaling €6,457.2 million largely consist of bank deposits. More details on the development of this item can be found in the section "Financial position of EnBW AG."

The decrease in prepaid expenses by €2,070.4 million to €4,674.3 million was primarily attributable to deferred earnings components from electricity and gas futures resulting from smaller differences between hedge prices and prices on the reporting date, as well as the adjustments to the hedge strategy.

The provisions for pensions and similar obligations held by EnBW AG to the amount of €7,018.1 million combine obligations from the company pension scheme and other company agreements made by major subsidiaries and EnBW AG. The resulting annual expenses for retirement benefits are reimbursed by the subsidiaries concerned in each case. In addition, provisions relating to nuclear power of €3,973.9 million are disclosed, which are formed to fulfill public law obligations and requirements in the operating licenses.

Of the liabilities totaling €21,118.8 million, €13,835.3 million have a residual term of more than one year. Overall, there are liabilities of €13,170.4 million to affiliated entities, which primarily result from intercompany settlement transactions within the framework of centralized financial and liquidity management, as well as from loan agreements.

The total decrease in liabilities by €2,084.4 million was primarily attributable to the fall in other liabilities by €3,611.9 million. The decrease in the collateral to stock markets and trade partners by €3,608.6 million was mainly due to changes in market prices and a corresponding adjustment to the hedge strategy. Trade payables also decreased by €516.3 million. In contrast, liabilities to affiliated entities and investments increased by €1,315.1 million and liabilities to banks rose by €807.6 million.

Non-current liabilities exist to the amount of €8,901.1 million to EnBW International Finance B.V. as part of the Debt Issuance Program (DIP), of which €3,363.4 million is from the issuing of five subordinated bonds, a private placement of bonds and promissory notes, and €1,537.8 million is from loan agreements with credit institutions. The main changes in comparison to the previous year were the taking out of two bank loans totaling €850.0 million. Furthermore, six new bonds were issued via EnBW International Finance B.V. each with a total volume of €3,256.7 million.

The decrease in deferred income by €299.9 million to €4,956.7 million was primarily attributable to deferred earnings components from electricity and gas futures resulting from smaller differences between hedge prices and prices on the reporting date, as well as the adjustments to the hedge strategy.

The aim is to cover the non-current pension and nuclear provisions with appropriate financial assets within an economically feasible time period. Overall, financial assets of €25,735.8 million are offset by long-term debt of €24,240.9 million.

In the financial year and on the reporting date, the liquidity of EnBW AG guaranteed the solvency of the company for the payment of current liabilities from the operating business at all times.

Financial position of EnBW AG

In comparison to the reporting date in the previous year, the liquidity of EnBW AG increased from €3,142.5 million by €3,314.7 million to €6,457.2 million.

The cash flows of EnBW AG fundamentally arise from both its own operating business and also the operating business of the subsidiaries, with balance payments received and made via the bank accounts of EnBW AG as part of the intercompany cash pooling system within the framework of central financing and liquidity management.

Important business transactions that had an effect on the financial position of EnBW AG in the 2023 financial year are summarized below:

In the financial year, capital measures totaling €1,137.5 million were taken at subsidiaries, mainly in the area of the grids and renewable energies. In addition, EnBW sold minority shareholdings in He Dreiht GmbH & Co. KG and EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG, which holds 100% of the shares in TransnetBW GmbH.

Bank loans of €850.0 million were also taken out, while six new bonds were issued via EnBW International Finance B.V. with a volume of €3,256.7 million. This was offset to some extent by repayments of bank loans totaling €70.5 million and the repayment of a bond via EnBW International Finance B.V. of €80.7 million.

As a result of the significant improvement in the earnings before interest and taxes, there were corresponding cash inflows in the financial year, especially in the trading business.

Other business transactions with a material impact on liquidity were cash outflows from margin payments of €1,834.9 million, cash outflows in connection with the utilization of the nuclear power and pension provisions of €695.1 million and interest payments to banks of €104.6 million.

There were income tax payments of €601.0 million and loans to affiliated entities increased by €658.4 million.

This was offset to some extent in the business year by cash inflows from the receipt of dividends of €360.9 million.

A total of €297.9 million was distributed to the shareholders of EnBW AG in dividends.

Overall assessment of the economic situation and development of EnBW AG

In our judgment, the development of the results of operations, financial position and net assets of EnBW AG as of 31 December 2023 is satisfactory after taking into account the effects described below that are not relevant to the ongoing management of the company. In the previous year, we anticipated an annual net profit to the order of around €2,000 million in 2023, influenced by positive effects not relevant to the ongoing management of the company of around €950 million.

The net profit/loss for 2023 was influenced by negative effects not relevant to the ongoing management of the company of around €1,200 million. In contrast, the operating business performed better than expected and was above the earnings forecast made at the start of the year.

The annual net profit for 2023 stands at €1,600.4 million and was primarily influenced by effects that arose both at EnBW AG itself and at its subsidiaries, which had an impact on EnBW AG due to profit and loss transfer agreements.

The main effect not relevant to the ongoing management of the company were additions to the provisions relating to nuclear power of €818.7 million (of which €537.2 million was reported as cost of materials of EnBW AG). Other negative effects arose from impairment losses on financial assets of €1,144.3 million, impairments on receivables of €162.1 million and additions to the provisions for onerous contracts of €136.7 million.

These effects were offset to some extent by income from the disposal of assets of €529.2 million, income from reversals of other provisions of €121.1 million, reversals of provisions for onerous contracts of €69.8 million and interest rate effects on non-current provisions of €165.8 million (of which in the interest result of EnBW: €138.0 million).

Based on the annual net profit of €1,600.4 million, and taking into account the profit carried forward of €355.0 million and the transfer into other revenue reserves of €800.0 million, there are retained earnings of €1,155.4 million.

We anticipate an annual net profit of around €1,400 million in 2024. This will be influenced by positive effects not relevant to the ongoing management of the company of around €250 million. Adjusted for these effects, the annual net profit will be around €1,150 million.

The amount that is ineligible for distribution as dividends is expected to be around €10 million as of 31 December 2024 and comprises the capitalized internally generated intangible assets and the valuation of the dedicated financial assets for pension provisions, whose fair value exceeded the acquisition costs.

Opportunities and risks

As the business performance, economic situation and opportunities and risks relating to the future development of EnBW AG do not deviate from the business performance, economic situation and opportunities and risks relating to the future development of the EnBW Group, the management report of EnBW AG is combined with that of the EnBW Group (p. 123↗).

Comments on reporting

The consolidated financial statements of EnBW AG are prepared in accordance with section 315e (1) HGB using the International Financial Reporting Standards (IFRS) set by the International Accounting Standards Board (IASB), the adoption of which is mandatory in the EU as of the reporting date. As a vertically integrated energy supply company in the sense of EnWG, EnBW AG engages in activities in electricity distribution, activities in gas distribution, other activities within the electricity sector, other activities within the gas sector and other activities outside of the electricity and gas sectors in accordance with section 6b (3) sentence 3 and sentence 4 EnWG.

EnBW share and dividend policy

Information on our **share price, dividends and shareholder structure** can be found on our website.

Online ↗

As a result of the small proportion of EnBW shares in free float, events on the financial markets and the development of the DAX generally only have a minor influence on the development of the EnBW share price. The price of EnBW shares was €89.20 at the start of 2023 and stood at €79.20 by the end of the year.

In the long term, EnBW plans to pay out no more than 40% to 60% of the adjusted EBITDA in dividends. Based on the annual net profit of €1,600.4 million, and taking into account the profit carried forward of €355.0 million and the transfer into other revenue reserves of €800.0 million, there are retained earnings of €1,155.4 million and thus dividends will be paid for the 2023 financial year. If approved by the Annual General Meeting, the dividend to be distributed for the 2023 financial year will be €1.50 per share. This corresponds to a dividend payout ratio of 15% of the adjusted Group net profit that is attributable to shareholders.

Overall assessment of the economic situation of the Group

Our integrated approach of positioning the company along the entire value-added chain of the energy industry ensures that our business model remains resilient. We have made sustainability an integral part of our corporate strategy. We continued to pursue our strategic goals by, for example, accelerating the expansion and take-up of renewable energies, expanding the grid infrastructure, starting construction at our fuel switch projects and expanding e-mobility. Organized into three segments, we want to further strengthen our profitability and continuously improve our sustainability performance at the same time. The aim is to make the company climate neutral with respect to our own CO_2 emissions (Scope 1 and 2) by 2035.

€6.4 billion
adjusted EBITDA

The operating business at a Group level performed better in 2023 than expected and was above the earnings range forecast made at the start of the year. Adjusted EBITDA increased significantly by 60.4% in comparison to the previous year. The result in the Smart Infrastructure for Customers segment was below the previous year's level and the forecasted range. However, the fall in earnings in this segment was more than compensated for by positive developments in the other two segments. The adjusted EBITDA for the System Critical Infrastructure segment increased and was within the forecasted range. In addition, the result in the Sustainable Generation Infrastructure segment rose significantly and was at the upper end of the adjusted forecasted range, exceeding the originally forecasted range. While the adjusted EBITDA for the Renewable Energies area was at the same level as in the previous year, earnings in the Thermal Generation and Trading area were significantly higher than in the previous year. Non-operating EBITDA fell considerably in comparison to the previous year. The Group net profit/loss attributable to the shareholders of EnBW AG fell from €1,738.0 million in 2022 by €200.4 million to €1,537.6 million in the reporting year. Earnings per share amounted to €5.68 in the 2023 financial year, compared to €6.42 in the previous year.

€5.0 billion
green bonds since 2018

€4.9 billion
gross investment

The financial position of the company remains sound. Solvency was ensured at all times thanks to the company's available liquidity and its internal financing capability, as well as external sources available for financing. As of 31 December 2023, net debt had risen by €856.1 million compared to the figure posted at the end of the previous year. This increase was mainly due to the increase in collateral. As a result of the increase in retained cash flow, the debt repayment potential was substantially higher in 2023 than the target value of between 18.0% and 21.0%. The value spread rose to 10.2% and thus exceeded the forecasted range. Gross investment in 2023 was around 56% higher than the level in the previous year. Around 79.9% of overall gross investment was attributable to growth projects.

46.9%
share of the generation capacity accounted for by RE

-29.3%
reduction CO_2 intensity

82 points
People Engagement Index (PEI)

In the customers and society goal dimension, the Reputation Index fell in 2023 by three index points in comparison to the previous year to 55 points and was thus once again at the same level as in 2021, although below our forecasted range for 2023 of between 57 and 60 points. The Customer Satisfaction Index for EnBW fell by 6.5% in 2023 to a value of 130 but remained at a good level. Despite a slight fall in the satisfaction of its customers, Yello was still able to maintain its index value at an outstanding level. As in the previous year, SAIDI Electricity was within the forecasted range in 2023. In the environment goal dimension, we were able to improve the share of generation capacity accounted for by renewable energies to 46.9%. The CO_2 intensity of our own electricity generation fell in comparison to the previous year by 29.3% as a result of an increase in generation from renewable energy sources and the significantly lower deployment of our coal power plants. In the employees goal dimension, the People Engagement Index (PEI) remained at a very high level in comparison with the previous year and with other companies. In the area of occupational safety, the key performance indicators for LTIF fell in comparison to the previous year.

Business at the company developed very positively in 2023. This was primarily attributable to higher income from electricity generation in the Sustainable Generation Infrastructure segment and higher income from the use of the grids in the System Critical Infrastructure segment.

Forecast

In our forecast we take a fundamental look at the expected growth and development of EnBW in the years 2024 to 2026. It should be noted that the present conditions – such as the high volatility on the markets (p. 66 ff.↗) – increase the level of uncertainty with which predictions about the future development of the company can be made. The expected economic, political and regulatory conditions are presented in the chapter "General conditions" (p. 58 ff.↗). Potential factors influencing the forecast are described in detail in the "Report on opportunities and risks" (p. 130 ff.↗).

Expected trends in the finance and strategy goal dimensions

Investment over a three-year period

In order to continue actively shaping the energy transition, gross investment of €24.5 billion is planned for the 2024 to 2026 period. This represents on average €8.2 billion per year. 15% of this investment will be on existing projects and 85% on growth projects. The majority of the gross investment (83%) will be in the System Critical Infrastructure segment and the expansion of renewable energies. We anticipate that more than 85% of our gross investment will be taxonomy-aligned according to the EU taxonomy.

Total investment 2024 – 2026
in %

- 50.8 System Critical Infrastructure (growth: 37.7, existing: 13.1)
- 41.6 Sustainable Generation Infrastructure / Other (growth: 39.8, existing: 1.8)
- 7.6 Smart Infrastructure for Customers segment (growth: 7.0, existing: 0.6)

Around 8% of the investment is planned for the **Smart Infrastructure for Customers** segment, of which approximately 7% will be for growth investment and 1% for investment in existing facilities. This investment is mainly intended for the expansion of electromobility, as well as for the expansion of the telecommunications infrastructure.

Around 51% of the investment will flow into the **System Critical Infrastructure** segment. Growth investment will account for approximately 38% of the overall gross investment and the remaining amount of around 13% will be for upgrading the existing grids. In order to make the transmission of renewable energies from the north to the south of Germany possible, funds have been allocated to the electricity transmission grid for the realization of two HVDC projects ULTRANET and SuedLink that involve our subsidiary TransnetBW and are part of the Network Development Plan. In addition, extensive investment in the expansion, upgrading and renewal of the existing distribution grids is planned by our grid subsidiaries. Our subsidiaries terranets bw and ONTRAS have already planned to make their first investments in the core hydrogen network in the three-digit million euro range within the three-year period.

Around €10.2 billion or 42% of the investment is planned for the **Sustainable Generation Infrastructure** segment and for other investment (other investment: 1%). Around 40% of the investment will be on growth themes and around 2% on themes related to existing facilities. Investment of around €8.0 billion for the expansion of renewable energies is planned for the period 2024 to 2026, which corresponds to 33% of gross investment. This includes funds for the realization of further offshore wind farms, such as our EnBW He Dreiht wind farm in the German North Sea. After acquiring offshore wind rights in Great Britain, we are planning to construct more offshore projects in Great Britain, for which additional investment has been allocated within the three-year period. We also plan to invest in the construction of onshore wind farms and photovoltaic parks from our comprehensive project pipeline (p. 26 f.↗). Furthermore, the planned investment for the Sustainable Generation Infrastructure segment includes €1.9 billion for the thermal power plants. This is primarily for the construction of our three H_2-ready gas power plants in order to guarantee the supply of district heating, in particular, from these three sites and maintain the security of supply in Baden-Württemberg in the future. Other investment mainly involves investment in the central IT system.

The investment program of the EnBW Group supports our strategy of expanding renewable energies and ensuring security of supply in the regulated areas of the transmission and distribution grids (electricity and gas), as well as the expansion of charging infrastructure for the benefit of electromobility.

In order to finance our investment for the energy transition, we intend to secure about half of the overall gross investment planned for the period 2024 to 2026 as cash returns in the form of **divestitures.** This includes entering into further strategic partnerships and securing cash inflows from existing participation models in specific areas of the company. Other divestitures will include the receipt of building cost subsidies.

TOP

Adjusted EBITDA and the share of adjusted EBITDA accounted for by the segments

Development in 2024 (adjusted EBITDA and the share of adjusted EBITDA accounted for by the segments) compared to the previous year

	Earnings performance (adjusted EBITDA) compared to the previous year		Development of the share of adjusted EBITDA for the EnBW Group accounted for by the segments	
	2024	2023	**2024**	2023
Smart Infrastructure for Customers	**€0.25 to €0.35 billion**	€239.5 million	**5% to 10%**	3.8%
System Critical Infrastructure	**€1.9 to €2.2 billion**	€1,772.0 million	**35% to 50%**	27.8%
Sustainable Generation Infrastructure	**€2.6 to €3.1 billion**	€4,647.6million	**50% to 65%**	73.0%
Other/Consolidation		€-293.9 million		-4.6%
Total	**€4.6 to €5.2 billion**	**€6,365.2 million**		**100.0%**

The adjusted EBITDA of the **Smart Infrastructure for Customers** segment is expected to increase in 2024. We anticipate that the negative earnings effects seen in 2023 will largely cease to exist. Following the removal of the price brake on electricity and gas, we anticipate a strong recovery in the market for the B2B and B2C commodity business. The share of adjusted EBITDA for the Group accounted for by this segment should be slightly higher than the level in the previous year.

The expected adjusted EBITDA for the **System Critical Infrastructure** segment will be significantly higher in 2024 than in the previous year. The main reasons for this development are higher income from the use of the grids as a result of returns on increased investment activity in projects that are included in the Network Development Plan Electricity and Network Development Plan Gas, as well as a higher return on capital employed. We expect an increase in the share of adjusted EBITDA for the Group accounted for by this segment in comparison to the previous year.

The adjusted EBITDA of the **Sustainable Generation Infrastructure** segment is expected to fall in 2024. This decrease in earnings will be due to a fall in the volatility on the markets and to the sale of generated volumes at lower prices on the market, resulting in a fall in the trading result in comparison to 2023, with an impact on the Thermal Generation and Trading area. Renewable energies are expected to contribute around €1.3 billion to earnings. After all of the pumped storage power plants have now been classified as environmentally sustainable in accordance with the EU Taxonomy Regulation (p. 108 ff.↗), they will be allocated to the Renewable Energies area from 2024 onwards. The adjusted EBITDA for the Renewable Energies area including earnings from pumped storage power plants of €0.7 billion would have totaled €1.7 billion in 2023. Furthermore, the moderate expansion in power plants for the uptake of renewable energies will make a positive contribution to earnings performance. The forecasts for wind and water yields, and thus for the volume of electricity generated, are based on the long-term average. As the volumes of electricity generated in 2023 were below this level, we anticipate higher volumes in 2024 in comparison to the previous year. This will be offset to some extent by falling prices in comparison to 2023. We expect the share of adjusted EBITDA for the Group accounted for by this segment to be below the level in the previous year.

The **adjusted EBITDA for the EnBW Group** is expected to fall in 2024 and will be between €4.6 billion and €5.2 billion. We also expect the adjusted EBITDA for the Group to be at around the same level in 2025.

The expected **EBITDA** in 2024 and 2025 will develop in line with the adjusted EBITDA. We do not make any forecasts relating to material non-operating effects.

We anticipate that the **EBT relevant to remuneration** will be between €2.1 billion and €2.4 billion in 2024 and thus around the same level as in the previous year. EBT in 2025 is expected to be within the same range as in 2024. The accuracy of the forecast for EBT is dependent on exogenous factors relevant to the non-operating result that cannot be planned for, such as impairment losses, the reversal of impairment losses or impending losses on onerous contracts for electricity procurement agreements.

Assuming an adjusted EBITDA in the range of €4.6 billion to €5.2 billion, we expect to achieve a **retained cash flow** in 2024 of between €2.0 billion and €2.5 billion. Adjusted for dividend payments (including payments from investments to third parties) and income tax payments, we expect an **FFO relevant to remuneration** of between €3.5 billion and €4.0 billion. We expect that retained cash flow in 2025 will be higher than in 2024 as a result of the lower utilization of provisions.

Debt repayment potential

TOP

Key performance indicator

	2024	2023
Debt repayment potential in %	13 – 16	41.3

We expect a significantly lower debt repayment potential of between 13% and 16% in 2024. The development of the debt repayment potential is dependent on factors within net debt that are outside of the company's sphere of influence, such as the development of interest rates for non-current provisions, the performance of the dedicated financial assets and margin payments from temporary price fluctuations on the market.

Share of adjusted EBITDA accounted for by low-risk earnings

TOP

Key performance indicator

	2024	2023
Share of adjusted EBITDA accounted for by low-risk earnings in %	≥ 70	44.7

We anticipate that the share of adjusted EBITDA accounted for by low-risk earnings will increase significantly in 2024 due to the increase in adjusted EBITDA for the System Critical Infrastructure segment and a higher share of earnings accounted for by the Renewable Energies area, together with a reduction in the share of earnings accounted for by the Thermal Generation and Trading area.

Proportion of taxonomy-aligned expanded capex

TOP

Key performance indicator

	2024	2023
Proportion of taxonomy-aligned expanded capex in %	≥ 85	86.5

The proportion of taxonomy-aligned expanded capex is expected to be at least 85% in 2024. This will mainly be attributable to our investment in the EnBW He Dreiht wind farm, in the construction of the three H_2-ready gas power plants and in offshore projects in Great Britain, as well as our ongoing high investment in the expansion of the grids.

Expected trends in the customers and society goal dimension

TOP

Key performance indicators

	2024	2023
Reputation Index	54 – 58	55
Customer Satisfaction Index for EnBW/Yello	114–125/ 145–155	130/161
SAIDI electricity in min./year [1]	< 20	19.3

1 SAIDI electricity includes all unscheduled interruptions to supply that last more than three minutes for the end consumer.

Reputation Index

EnBW will strive to improve its reputation continuously and appreciably over the next few years. The Reputation Index is an important non-financial performance indicator because it is influenced by a whole series of factors important to the future viability of our company. The existing reputation management department and stakeholder team at EnBW can recommend measures for optimizing the reputation of the company.

Customer Satisfaction Index

In our opinion, various external factors could have an increasingly negative impact on the satisfaction of our customers in 2024. These include, for example, the effects of the war between Russia and Ukraine, a comparatively high rate of inflation and the negative impact of the energy and budgetary policy decisions taken in Germany at the end of 2023. As a result of the sharp decrease in the procurement price for energy, it is likely that there will be different pricing levels for new and existing customer contracts on the market. This will foster a more critical opinion of energy companies among customers. Other negative effects on prices, with a corresponding impact on customer satisfaction, could arise if energy supply chains are disrupted by new regional conflicts such as in the region around Israel and the Arabian Peninsula. Economic recovery in Europe and Asia could also lead to increased demand for energy, which would cause prices for electricity and gas to rise. In addition, more investment in the grid infrastructure is needed to push forward the energy and mobility transitions and maintain the stability of the grids. Increasingly volatile developments on the market and, for example, further market exits or insolvencies of market participants could also have negative effects on the Customer Satisfaction Index.

To improve the satisfaction of our customers, we are expanding our range of sustainable energy industry services and energy solutions even further and targeting our sales activities in this direction. In this context, we are also making the product portfolio more sustainable for our customers. We are combining traditional energy products (electricity and gas) with household and energy-related products and services. This includes, for example, continuing with the swift and comprehensive expansion of the quick-charging infrastructure in Germany and extending the EnBW HyperNetwork across Germany and Europe with our partners. We will also further exploit the opportunities offered by digitalization: New and improved digital processes will allow us to offer customized products to our customers and provide them with an even better quality of service. On this basis, we expect a slightly lower value for the Customer Satisfaction Index for EnBW of between 114 and 125 points in the 2024 financial year. Through further digitalization of customer processes, flexible offers and a clear focus on sustainability, Yello is striving to achieve a Customer Satisfaction Index of between 145 and 155 points in the 2024 financial year, slightly lower than in the previous year.

SAIDI

The grid subsidiaries of EnBW have always achieved a high level of supply reliability throughout their grid area and for their customers. The corresponding key performance indicator SAIDI Electricity, which states the average duration of supply interruptions per end consumer per year, stood at 19.3 minutes in 2023. We will continue striving to achieve a value of consistently below 20 minutes in the 2024 financial year and subsequent years.

Expected trends in the environment goal dimension

TOP

Key performance indicators

	2024	2023
Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %	6.5 – 6.8/ 56 – 57	5.7/46.9
CO_2 intensity in g/kWh [1]	390 – 450	347

1 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW.

Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

We expect that the installed output of renewable energies and the share of the generation capacity of the Group accounted for by renewable energies will continue to rise in 2024. This increase will be due to the planned construction of additional onshore wind and photovoltaic power plants, as well as the increase from the addition of pumped storage power plants that do not use the natural flow of water. The reason for this reallocation as renewable energies is due to the classification of the pumped storage power plants as environmentally sustainable in accordance with the EU Taxonomy Regulation (p. 108 ff.↗). The transfer of Block 7 of the Rheinhafen steam power plant in Karlsruhe and Block 8 of the large power station in Mannheim to the grid reserve in the first half of 2024 will also increase the share of the generation capacity accounted for by RE. In subsequent years, we expect a continuous increase in the installed output of renewable energies. This will thus increase the share of the generation capacity accounted for by RE further. The expansion in renewable output is taken into account in the remuneration of the Board of Management and is a component of the Long Term Incentive (LTI).

CO_2 intensity

In 2023, CO_2 intensity fell more than expected due to low deployment of our thermal power plants on account of prices on the market and to more favorable wind and water conditions in comparison to 2022. As a result of the changed market conditions and the return to operation of our hard coal power plant Heilbronn 7 during the course of the year, we anticipate higher generation from our thermal power plants in 2024. In combination with wind yields, which are forecast using the long-term average, we anticipate that CO_2 intensity in 2024 will be 390 g/kWh in the best-case scenario and 450 g/kWh in the worst-case scenario. In comparison to the reference year of 2018 used for our target of climate neutrality, this forecast corresponds to a reduction in CO_2 intensity of between 18% and 29%. The key performance indicator CO_2 intensity will be taken into account in the remuneration of the Board of Management in future and will become a component of the Long Term Incentive (LTI).

Expected trends in the employees goal dimension

TOP

Key performance indicators

	2024	2023
People Engagement Index (PEI) [1]	≥ 78	82
LTIF for companies controlled by the Group [2, 3, 4]	2.1	2.4
LTIF overall [2, 3]	3.6	3.7

1 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except ITOs)).
2 LTIF indicates how many LTI occurred per one million working hours performed. Further information on the calculation of this performance indicator can be found on p. 34↗.
3 The LTIF for companies controlled by the Group excluding waste management and LTIF overall, which includes the area of waste management, only includes companies with more than 100 employees excluding external agency workers and contractors.
4 Newly fully consolidated companies are not included for a maximum transition period of three years.

People Engagement Index

The People Engagement Index (PEI) stood at 82 points in the reporting year. We were thus able to once again slightly improve on the very good result from the previous year (81 points). An international benchmark index compiled using similar questions at numerous companies from various different sectors stood at 74 points in 2023. Taking into account this global benchmark score, we are striving to achieve a target value for the PEI of at least 78 points in 2024.

LTIF

We are committed to our goal of continuously improving occupational safety within the company for both our own employees and those of our partner companies who carry out work on behalf of EnBW. Therefore, we have implemented numerous accident prevention measures. The energy crisis brought about huge changes for EnBW as an energy supply company in 2022 that continued to have a noticeable impact in 2023. As a critical infrastructure company, we have a responsibility to ensure a reliable supply of energy. Changes to working conditions and their consequences (such as an increased workload) increased the risk of accidents. We believe that this has also been reflected in the number of accidents in 2023. In 2024, we will continue the measures we introduced to improve occupational safety – especially in the area of conventional generation – in the reporting year. Despite these challenges, we are still striving to reduce the number of accidents and both the LTIF for companies controlled by the Group and LTIF overall moderately in the long term. The LTIF for companies controlled by the Group is taken into account in the remuneration of the Board of Management and is a component of the Long Term Incentive (LTI).

Overall assessment of anticipated developments by the management

We expect a fall in adjusted EBITDA for the Group in 2024 in comparison to the previous year because the adjusted EBITDA for the Sustainable Generation Infrastructure segment will normalize again. The shares of earnings accounted for by the different segments will change accordingly. We always strive to maintain a balanced financing structure, solid financial profile and thus solid investment-grade ratings. With respect to our non-financial key performance indicators, we expect a largely stable to slightly positive development in 2024.

Report on opportunities and risks

Principles of the integrated opportunity and risk management system

Opportunity and risk map

Strategic / sustainability		Operative			Financial		Compliance
Strategy	**Sustainability**	**Business activity**	**Infrastructure**	**Implementation of growth fields**	**Financial management**	**Corporate financing**	**Compliance**
Sustainable Generation Infrastructure ● ○	Climate change ● ○	Business processes	Plants / grids / storage / IT	Renewable energies ● ○	Market prices	Capital market	Corruption ○
Market developments / social trends ●	Environmental protection ○	Operating activities	Information security / confidentiality	Gas / biogas business	Liquidity management	Ratings	Antitrust law
System Critical Infrastructure	Weather / natural events ●	Products / contracts	Crime / sabotage / terrorism	E-mobility / digitalization	Earnings management		Data protection
Smart Infra-structure for Customers	Personnel ○	Operational projects		Expansion of the grids	Investment management		Fraud
	Occupational safety / health protection ○	Approvals / licenses / patents					Taxes and levies
	Human rights ○	Legislation / regu-lation / litigation ●					
	Social issues ○						
	Reputation ● ○						

● Task Force on Climate-related Financial Disclosures (TCFD) ○ Corporate Social Responsibility (CSR)

The integrated opportunity and risk management system (iRM) of EnBW is based on the internationally established COSO framework as a standard for risk management systems that span entire companies, as well as the requirements of the Institute of Public Auditors in Germany (IDW). The iRM aims, through a holistic and integrated approach, to effectively and efficiently identify, evaluate and manage opportunities and risks (including monitoring) and report on the opportunity and risk position, as well as to ensure the appropriateness and functionality of related processes. Risk management involves measures for avoiding, reducing or transferring risk through adequate accounting provisions, as well as measures for managing risk tolerance. For this purpose, we define an opportunity/risk as an event that might cause a potential over-attainment/non-attainment of strategic/sustainability, operational, financial and compliance goals in the future. The iRM process also takes into account the guidelines for a non-financial declaration. In order to identify and categorize opportunities and risks, EnBW uses, among other things, the opportunity and risk map that is established throughout the Group. The risk map is used to explicitly identify potential opportunities and risks that affect the sustainable orientation of our company. As well as focusing on the fulfillment of the requirements for a nonfinancial declaration, the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) are also taken into account.

We constantly improve and enhance the maturity of our iRM management system. This gives us the chance to react to any legal or regulatory changes and also to exploit any potential for improvement that we may have identified.

Structure and processes of the integrated opportunity and risk management system

Structure and process of the iRM system

The structures and processes of the iRM are established throughout the Group. The central risk management & ICS functional unit is responsible for specifying methods, processes and systems for the whole Group, determining the opportunity and risk position of the Group and for reporting. The central steering body is the risk committee, which – with the involvement of specially selected units/companies – is responsible for clarifying relevant issues from various Group perspectives, as well as for determining the top opportunities/risks.

Internal reports are submitted on a quarterly basis in standardized form. In the case of any significant changes, a special report based on a formalized structure is immediately issued. Opportunities and risks can have an impact on our key financial performance indicators adjusted EBITDA, debt repayment potential, share of adjusted EBITDA accounted for by low-risk earnings and proportion of taxonomy-aligned expanded capex (p. 33↗). The possible effects on the key non-financial performance indicators (p. 34↗) are discussed with those responsible in the specialist areas.

Opportunities and risks are evaluated within the medium-term planning period. A financial valuation of the opportunities and risks is carried out insofar as this is possible, and the expected values and potential ranges given by the results are considered. If they lie above uniformly defined thresholds, the opportunities and risks are generally included in the Group report on opportunities and risks. The so-called top opportunities/risks and long-term opportunities and risks that are of particular importance are then added. The top opportunities/risks are determined using global opportunity and risk trends, value drivers along the value-added chain and quantitative characteristics such as relevance classes and monetary limits.

Any opportunities and risks with a probability of occurrence of up to 50% are subject to an individual review to determine whether they should be taken into account in the next planning session. Opportunities and risks with a probability of occurrence of over 50% are usually taken into account in the planning process and, as far as possible, appropriate accounting measures are taken in the consolidated financial statements in accordance with IFRS.

Opportunities and risks are generally evaluated in relation to the current planning period. This is carried out using quantitative methods involving stochastic modeling based on appropriate probability distributions. The resulting distributions enable us to derive the risk dimensions in each case, such as the expected level for the opportunity and risk and the variation in the expected level. Risk ranges for the 98% confidence level are applied to ensure that possible extreme scenarios for individual opportunities or risks can be identified. This represents larger financial ranges in order to cover potential extreme scenarios with a higher probability.

Building on this, we then assess the risk-bearing capacity. This is done based on the continuous quantification of risks, which are aggregated using stochastic simulations to find the total risk position. The total risk position is then measured against the coverage potential. The result is an assessment of the maximum risk that EnBW can tolerate without jeopardizing its ability to continue as a going concern. This risk-bearing capacity can be used as a management instrument and fulfills the requirements of the auditing standard IDW PS 340 new version.

Relevance filter for classifying opportunities and risks

Strategic / sustainability	Operative	Financial	Compliance	
Achievement of strategic targets, sustainability targets, e.g., climate protection, environmental protection, reputation	Achievement of business targets, functional processes, retaining added value, customer / external effects	Achievement of financial targets, generally in accordance with medium-term planning or approved (project) budgets	Compliance with legal / official regulations and internal regulations	
Relevance class 5 One strategic / sustainability target for the EnBW Group is not achieved	• One key operational target for the EnBW Group is not achieved • The value added is massively disrupted across the company / business units / functional units	≥ €50 million (relevance threshold for functional units and EnBW Group)	Breach of legal / official regulations and / or internal regulations with negative consequences for the EnBW Group	Group reporting level
Relevance class 6 Several or all strategic / sustainability targets for the EnBW Group are not achieved	• Several or all operational targets for the EnBW Group are not achieved • Value added throughout the whole Group is massively disrupted	≥ €250 million	Breach of legal / official regulations and / or internal regulations with serious negative consequences for the EnBW Group	Group reporting level

Structure and processes of the accounting-related internal control system

Principles

An accounting-related internal control system (ICS) has been established at EnBW that is designed to ensure proper and reliable financial reporting. In order to guarantee that this ICS is effective, the appropriateness and functionality of the Group-wide control mechanisms are tested regularly at the level of the individual companies and at a Group level.

If any existing weaknesses are identified in the control system and are considered relevant to the financial statements, they are remedied. This accounting-related ICS methodology is based on the COSO II standard.

Once the control mechanisms have reached a standardized and monitored degree of maturity, and no material control weaknesses can be identified, the accounting-related ICS is deemed to be effective. The materiality of control weaknesses is measured as the probability of occurrence and the extent to which there could be a potential misstatement in connection with those financial statement items concerned. The accounting-related risk management system defines measures for identifying and assessing risks that jeopardize the preparation of compliant financial statements as part of the accounting-related ICS.

Despite having established an ICS, there is no absolute certainty that it will attain its objectives or that it will be complete. In individual cases, the effectiveness of the ICS can be impaired by unforeseeable changes in the control environment, fraud or human error.

Structure

The accounting-related ICS at EnBW is organized at both a centralized and decentralized level. All key companies, business units and functional units have an ICS officer. These officers monitor the effectiveness of the ICS and evaluate any control weaknesses that may arise. An effectiveness report is prepared on an annual basis. The ICS officer at Group level assists the companies/units with the implementation of standardized procedures and also consolidates collected data.

Process

Standardized procedures are used to ensure completeness and consistency in the preparation of the financial statements and financial reporting. The accounting-related ICS defines controls designed to ensure compliance with the accounting policies used by the Group, as well as procedures and deadlines for the individual accounting and consolidation processes. During the Group consolidation process, the rigorous implementation of the four-eye principle is observed, while random samples and deviation analyses improve quality. An annual control cycle monitors whether the documentation is up to date and also checks the appropriateness and functionality of the controls. In addition, it identifies and evaluates any control weaknesses that may arise.

A risk-based selection process defines the companies/units, significant items in the financial statements and processes including their associated control measures that are relevant.

The defined processes and controls are recorded in a central documentation system. The effectiveness of the various control activities is then assessed. If any control weaknesses are identified, their effect on the financial statements is evaluated. The results are reported at both company or unit level and at Group level. Furthermore, the Group auditing department performs ICS reviews as part of its risk-oriented audit planning.

Appropriateness and effectiveness of the risk management system and the internal control system (iRM)

A statement on the appropriateness and effectiveness of the iRM process is made annually as part of the internal EnBW Group effectiveness report. The following are examined: the appropriateness and effectiveness of the risk management system at the level of the individual opportunities and risks, signed declarations by the management of important investments and business units and the notification to the internal audit department in the respective reporting year. Findings from the audit of the early risk detection system and the accounting-related ICS carried out by the auditor are presented in the effectiveness report. Financial and non-financial opportunities and risks identified by the system for the iRM process, and also risks identified in the compliance risk assessment are deemed relevant.

All of the individual opportunities and risks that are identified as being material before the application of the envisaged and implemented management instruments are used to assess the appropriateness and effectiveness of the system. Appropriateness is measured using a so-called gross evaluation. This gross evaluation is carried out with the aid of the iRM relevance filter and determines the level of opportunity and risk for each of the four categories: “strategic/sustainability,” “operational,” “financial” and “compliance.” For gross relevance class 5 and above, opportunities and risks are considered appropriate and material enough to be included in the effectiveness report. Risk officers are able to deviate from this classification and can also select a lower relevance class. Management instruments are then documented for the identified opportunities and risks, and the residual level of opportunity and risk (net evaluation) is determined as part of the regular risk reporting process. Ultimately, a self-assessment of the management of the risk is carried out by the risk officer. A second person then examines the management instruments for the specific opportunity/risk to confirm whether the management of the opportunity/risk is effective or not, and so acts as an internal control at the same time. The results flow into the report on the Group effectiveness report.

The managers of the business units and investments finally confirm that they have established a process that is appropriate in accordance with the Group guidelines for complying with the requirements for the ICS and for risk management including compliance management by signing a corresponding declaration. The results from the effectiveness report are passed on to the auditor during the audit of the early risk detection system and also to the internal audit department. The Board of Management reports on the results to the Supervisory Board and substantiates the findings.

As of the reporting date of 31 December 2023, there were no findings for the reporting year that indicated that the risk management and internal control systems were not appropriate and effective in all material respects. It is generally accepted that an internal control system cannot fully guarantee that material misstatements in accounting will be either prevented or detected.

Non-financial declaration

As part of the non-financial declaration, we closely analyze the related opportunities and risks in the areas of compliance, social engagement and procurement, as well as in the customers and society, environment and employees goal dimensions. In order to guarantee that the requirements for a non-financial declaration are fulfilled, the established iRM methods and the associated process are used. In this context, the iRM also identifies opportunities and risks relating to climate protection and thus provides important impetus for the implementation of the recommendations of the TCFD. You can find further information on this subject on p. 146↗.

Risks associated with the non-financial declaration

The non-financial declaration describes, among other things, the fundamental opportunities and risks connected with the EnBW business model and the activities based upon it that could have a possible impact on any individual issue. Material individual risks with a very high probability of a serious negative impact in relation to any of the following issues do not exist at EnBW.

Compliance

The observance of relevant legal regulations and internal company rules forms the basis of our business activities. Managing compliance risks at EnBW (with a main focus on corruption, bribery, antitrust, fraud and data protection risks) is the task of the compliance and data protection management system, which comprise regular risk assessments of this type. Further information on how we handle compliance risks can be found on p. 39 ff.↗.

Corporate citizenship

There are no risks in the area of corporate citizenship. In fact, we take our social responsibility for civic and social engagement seriously (p. 44 f.↗).

Procurement

Sustainable procurement – purchasing: In the area of procurement, risks cannot be excluded due to increasing levels of complexity and the growing demand and heightened public interest for human rights and sustainability in the supply chain. Purchasing utilizes an active risk management system, counters procurement risks and implements the necessary measures for safeguarding against and avoiding risk. These risks are managed using defined processes especially for prequalification and other specified processes that improve the transparency of risks in the supply chain (p. 52 f.↗).

Raw materials procurement – coal and gas: In the area of raw materials procurement and thus in the associated supply chain, there are above all potential human rights and environmental risks. In the procurement of raw materials, a multistage process is used to check whether human rights and environmental standards are being observed. All coal and gas suppliers as well as any potential suppliers are regularly subjected to a screening process. Other measures that form part of the assessment are carried out in direct cooperation with the compliance department. In coal mining and the production of natural gas, there are possible human rights risks related to the working and living conditions of people in the coal mining regions and natural gas producing regions. In addition, there are environmental risks for the immediate environment in each of these mining and gas producing regions. These risks are associated with an increased risk to the reputation of EnBW as a purchaser of these raw materials. We not only rigorously implement preventative and remedial measures in our raw material supply chains but also remain in constant contact with representatives from civil society, ensuring they are kept informed about any advances made and challenges faced in all themes relating to sustainability concerning the procurement of raw materials (p. 54 ff.↗).

Customers and society goal dimension

Reputation: All opportunities and risks, as well as non-financial issues, can have a positive or negative impact on reputation and thus on the key performance indicator Reputation Index (p. 87↗). The reputation management department thus identifies opportunities and risks related to reputation, develops measures to protect and improve reputation, advises the Board of Management and management and provides recommendations for action.

Customer proximity: Risks/opportunities arise due to the normalization of competition in the new and existing customer business, although they were significantly reduced by the electricity and gas price brake. Other factors are lower market prices since December 2022, although they remain high, as well as political uncertainty and volatile framework conditions. Opportunities exist above all through the provision of a broader range of customer-specific products and services, such as the expansion of the additional business (e-mobility bundles, heating packages, "digital energy consultant"), as well as through processes more oriented to the customer. EnBW also continued to expand its range of electromobility products and services in 2023, as well as its sustainable and digital energy industry services and energy solutions, while targeting its sales activities in this direction (p. 87 ff.↗).

Environment goal dimension

Expansion of renewable energies: Risks generally exist in the approval and auction process. These risks can result in delays to the further expansion of renewable energies. Due to the fact that the auctions are held on equal terms, we continue to expect a high level of competition. We measure the expansion of renewable energies with our key performance indicator "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" (p. 93 f.↗).

CO_2 intensity / climate protection: Risks generally exist in the area of environmental protection due to the operation of power and heat generation plants and infrastructure facilities, with the possible consequences this could have for the air, water, soil and nature. The importance of climate protection is taken into account in, for example, the key performance indicator CO_2 intensity (p. 95 ff.↗).

We counter these risks using, among other things, an environmental management system certified according to DIN EN ISO 14001, which has been established at key subsidiaries (p. 93↗). We take the safety of the population and the protection of the environment very seriously. In this context, risks also exist due to external circumstances, such as extreme weather conditions. We counter these risks using comprehensive organizational and procedural measures to reduce their impact. We ensure that the risks posed by crisis and emergency situations are mitigated quickly, effectively and with a coordinated approach through regular crisis management exercises and other measures (p. 18↗). Through our diverse range of activities in the areas of environmental, nature and species protection, we also utilize the opportunity – beyond our core activities – to make a substantial contribution to improving environmental protection. Thanks to the positive public perception of these activities, they can also have a positive impact on our key performance indicator Reputation Index (p. 87↗).

At the same time, EnBW also faces potential risks due to the ongoing process of climate change. For example, more frequent extreme weather conditions leading to highly fluctuating water levels or limits being placed on emissions locally could have a negative impact, particularly on the operation of power plants and thus the security of supply (electricity grids). The operation of hydropower plants can be restricted by both a lack of, or also an abundance of, water. The output from thermal power plants that must be cooled could possibly be impacted by temperature limits on discharged water. Increasing volatility in the availability of wind, water and sun presents challenges in terms of planning certainty for the operation of power plants and the sale of volumes of electricity (p. 26 ff.↗). For this reason, the top opportunity/top risk of wind fluctuations has been reported since the Integrated Annual Report 2016, although these opportunities/risks have no material effect on non-financial issues. In addition, there is uncertainty due to increasing environmental restrictions for the realization of projects for sustainable generation and for the operation of power plants. These risks are managed and mitigated in internal processes using targeted control measures.

Alongside changes in physical climate parameters and other developments relating to or governed by environmental factors, regulatory guidelines and the potential changes associated with them, as well as changes in the market, also flow into the risk evaluation process. However, there are also opportunities such as changing customer needs (p. 87 ff.↗) and an increasing demand for climate-friendly products such as e-mobility. These opportunities and risks are regularly and systematically identified Group-wide. The recommendations from the Task Force on Climate-related Financial Disclosures (TCFD) are continuously implemented and are communicated in the report on opportunities and risks. Building on the opportunities and risk map (p. 130↗), a special focus is placed on sustainability aspects – especially climate protection targets – and they are anchored deep in the risk evaluation process. We closely examine the significance of sustainability and climate protection themes for the business model and implement measures and set targets to orientate our opportunity and risk management system even more towards climate-related opportunities and risks.

Employees goal dimension

Engagement of employees: Due to the persistent level of competition on the labor market, especially for qualified and highly qualified specialists, there is a fundamental risk when recruiting employees that the company will not be able to secure a sufficient number of employees with the necessary qualifications at the right time. The more intensive measures to strengthen the company's reputation as an employer, the growing interest in jobs in the energy sector and the possibility of tapping into the international job market lessen this risk to some extent. We believe that regular anonymous employee surveys, from which we derive the People Engagement Index (PEI) as a key performance indicator, are an important tool for seizing opportunities early in the areas of employee development and employee loyalty (p. 101↗).

Occupational safety: Risks generally exist in the areas of occupational safety and health protection in our business activities. We counter these risks using comprehensive organizational and procedural measures, such as workplace-specific hazard analyses, to protect employees as well as possible against any adverse consequences. We also view these measures as an opportunity to preserve the capacity of our employees to do their work and to maintain the position of EnBW as an attractive employer. Occupational safety is measured in the employees goal dimension in the form of the key performance indicator LTIF for companies controlled by the Group and LTIF overall (p. 105↗).

Classification of opportunities and risks

The individual evaluations of the top opportunities/risks tell us – based on the level of opportunity/risk – what effects they could have with a high probability of occurrence on our key performance indicators in the finance goal dimension: adjusted EBITDA, debt repayment potential and from the 2024 financial year the two new key performance indicators share of adjusted EBITDA accounted for by low-risk earnings and proportion of taxonomy-aligned expanded capex. The top opportunities/risks are described after the implementation of risk limitation measures. The financial effects are calculated based on a 98% confidence level (which includes the probability of occurrence and the extent of the damage) and break down as follows:

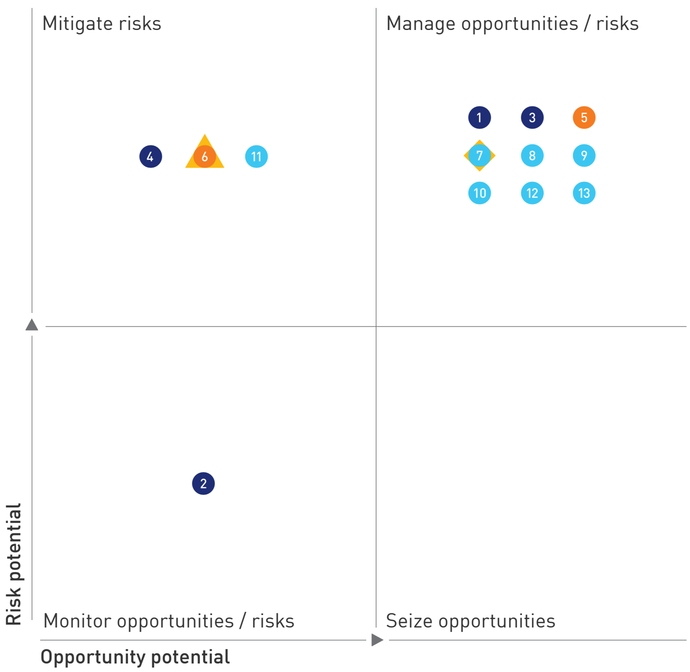
Classification of the level of opportunity/risk

	Adjusted EBITDA	Net debt
Low	< €200 million	< €600 million
Moderate	≥ €200 million to < €550 million	≥ €600 million to < €2,000 million
Significant	≥ €550 million to < €1,000 million	≥ €2,000 million to < €3,500 million
Material	≥ €1,000 million	≥ €3,500 million

Opportunity and risk position

The following diagram illustrates how the opportunity and risk position is reported to the Board of Management and the audit committee of the Supervisory Board. The arrangement of the top opportunities/risks in the quadrants indicates how EnBW can employ control measures to exploit the opportunities or to counteract the risks.

Top opportunities/risks as of 31/12/2023



Top opportunities/risks
Cross-segment

1. Market prices of financial investments
2. Discount rate applied to pension provisions
3. Margins / liquidity requirements
4. State-sponsored cyberattacks due to the war between Russia and Ukraine

Smart Infrastructure for Customers

5. Competitive environment
6. Incidents relating to battery storage systems

Sustainable Generation Infrastructure

7. Fluctuations in energy yield in the North Sea and Baltic Sea
8. Expansion of major projects
9. Hedging
10. Power plant optimization
11. Credit risk in energy trading
12. Availability of power plants
13. Dismantling of nuclear power plants

New opportunity / new risk; Task Force on Climate-related Financial Disclosures (TCFD)

Details on the top opportunities/risks and their potential effects on the relevant performance indicators are listed in the following section.

The following top opportunities/risks were new in 2023:

- Incidents relating to battery storage systems

Cross-segment opportunities and risks

Our company faces general risks from legal proceedings due to our contractual relationships with customers, business partners and employees. To a limited extent, we are also conducting legal proceedings relating to topics in the area of corporate law. For this purpose, adequate accounting provisions are made or, in the event of a probability of occurrence of <50%, adequate contingent liabilities. As a consequence, there is also an opportunity of positive effects on earnings if these provisions can be reversed once again. In addition, various court cases, investigations by authorities or proceedings and other claims are pending against EnBW. The chances of these being successful are, however, considered remote or as not sufficiently substantiated and are therefore not reported under contingent liabilities and other financial obligations.

In connection with these types of legal proceedings, we also recognize the water concession risk in Stuttgart. In the court proceedings dealing with the takeover of the water grid after the water concession in the state capital Stuttgart (LHS) expires, LHS and EnBW are still striving to reach an amicable settlement. These court proceedings have been ongoing since 2013 and suspended several times for mediation talks. Unfortunately, it was not possible to reach such an agreement due to a difference of opinion on the valuation. Therefore, there continues to be a risk in 2024 of losing the water grid without receipt of adequate compensation.

Strategic/sustainable opportunities and risks

Financial opportunities and risks

❶ **Market prices of financial investments:** The financial investments managed through the asset management system are subject to risks that arise from price losses and other losses in value as a result of the volatile financial market environment. The significant increase in interest rates could lead to higher refinancing costs and negatively impact the level of debt as a result. To improve the opportunity/risk ratio of the portfolio, greater focus is currently being given to sustainability criteria in our investments. There is a moderate level of opportunity and risk in 2024 and 2025. This will have an impact on net debt and thus on the key performance indicator debt repayment potential.

❷ **Discount rate applied to pension provisions:** There is generally opportunity and risk associated with any change in the discount rate applied to the pension provisions because the present value of the pension provisions falls when the discount rate increases and increases when the discount rate falls. As of the reporting date of 31 December 2023, the discount rate was 3.15%, which was down 0.55 percentage points on the rate at the end of 2022 (3.7%). Against the background of the expected development of interest rates, we identify a significant level of opportunity and risk for 2024 and a material level of opportunity and risk for 2025. This will have an impact on net debt and thus on the key performance indicator debt repayment potential.

❸ **Margins/liquidity requirements:** The Group's liquidity planning is subject to an inherent degree of uncertainty, especially with respect to margin payments. Sharp increases in prices and high volatility in energy trading on the commodity markets (EEX/ICE) have led to high cash inflows and outflows as part of margining processes which are beyond the normal margin requirements. There is a significant level of opportunity and a moderate level of risk for 2024 with an impact on net debt and thus on the key performance indicator debt repayment potential.

❹ **State-sponsored cyberattacks due to the war between Russia and Ukraine:** The war is also being accompanied by attacks in cyberspace and the risk of state-sponsored cyberattacks remains high. According to information obtained by the Federal Office for Information Security, the threat of possible cyberattacks on critical infrastructure and suppliers could increase in the foreseeable future. On the reporting date, there was no indication that there would be more than a moderate level of risk in this area in 2024 and a low level of risk in 2025. This potential risk would have an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow. In addition, it would have an impact on the key performance indicator share of adjusted EBITDA accounted for by low-risk earnings.

Compliance opportunities and risks

Compliance risk assessments focus, in particular, on assessing risks and defining appropriate preventative measures in the compliance risk areas of corruption, antitrust law and data protection.

Risks for which we derive measures for fighting corruption and bribery primarily exist in sales activities relating to local authority/political business activities when dealing with public officials. Important preventative measures, especially training and advisory services, are described on p. 39 ff.↗.

The incorrect handling or illicit disclosure or use of personal data poses data protection risks. These risks exist in view of the digital transformation of many business activities. Advisory and awareness services and process controls are in place to guarantee adherence to legal data protection requirements in the Group. Company-specific measures are coordinated via the compliance and data protection department.

Smart Infrastructure for Customers segment

Financial opportunities and risks

5 **Competitive environment:** There is a risk that the legislative framework could have an impact on the competitive situation and sales activities. This affects all EnBW brands in the electricity, gas and energy solutions business, in combination with the volatile procurement prices on the market. The risk of bad debt has reduced but nevertheless still exists. Opportunities currently exist, for example, in the expansion of the range of electromobility products and services, the provision of a broader range of customer-specific products and services, sustainable energy industry services and energy solutions, and through aligning sales activities more towards these products and services. There is a low level of opportunity and risk for 2024 and 2025 with an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow.

6 **Incidents relating to battery storage systems:** In response to six incidents relating to battery storage systems produced by a subsidiary, we carried out a careful investigation of the systems and have implemented a comprehensive range of measures. Appropriate provisions were formed to cover the subsequent costs that were incurred. In terms of any remaining residual risks, there could be a low level of risk for 2024 and 2025 with an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow.

Sustainable Generation Infrastructure segment

Financial opportunities and risks

7 **Fluctuations in energy yield in the North Sea and Baltic Sea:** There are generally opportunities and risks associated with wind power plants due to fluctuations in the energy yield. As we expand our wind power plants and our wind farm portfolio continues to grow, the variation in the level of opportunity and risk will naturally increase. Findings on the development of wind conditions are continuously examined to identify the possible effects of these risks and they are taken into account in the planning. There is a low level of opportunity and risk for 2024 and 2025 with an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow. In addition, there would be an impact on the key performance indicator share of adjusted EBITDA accounted for by low-risk earnings.

8 **Expansion of major projects:** There are uncertainties with respect to major projects, especially in the offshore sector, until the time the final investment decision is taken due to changes that may be made to regulatory framework conditions. There may also be additional effects arising from increasing prices and the limited availability of materials and raw materials. We have taken the decision to invest in one of our major projects. This could have an impact on the key performance indicator proportion of taxonomy-aligned expanded capex.

9 **Hedging:** When selling generated electricity volumes, EnBW is exposed to the risk of falling electricity prices and the risk of the unfavorable development of fuel prices in relation to electricity prices. The concept underlying our hedging strategy not only limits risk but also seeks to exploit opportunities. The EnBW Group has exposure to foreign exchange risks from procurement and the hedging of prices for its fuel requirements, as well as from gas and oil trading business. There is a low level of opportunity and risk for 2025 with an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow.

10 **Power plant optimization:** Following the conclusion of the hedging of generation activities, the Trading business unit will manage the further deployment of the power plants. This is being carried out as part of power plant optimization on the forward market, through the sale of system services and through placements on the spot and intraday trading platforms. There is a low level of opportunity and risk for 2024 and 2025 with an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow.

11 **Credit risk in energy trading:** There is a risk that trading partners will fail to fulfill their financial obligations or be unable to fulfill them on time. Our credit management department counters this risk by monitoring credit lines very closely, conducting stress tests and introducing measures to reduce its impact. There is a low level of risk for 2024 with an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow.

12 **Availability of power plants:** There is a general opportunity and risk that exogenous and endogenous factors will have an influence on the planned availability of our power plants and could thus increase or decrease earnings. There is a low level of opportunity and a moderate level of risk in 2024 and a low level of opportunity and risk in 2025 with respect to the pricing assumptions used for our planning. This will have an impact on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator debt repayment potential via the retained cash flow.

Impairment losses and impending losses on onerous contracts: As a result of changes to the conditions in the energy industry, there is a general risk that impairment losses on power plants and the formation of provisions for impending losses on onerous contracts for long-term electricity procurement agreements could have a negative impact on earnings. As a result of the reversals of impairment losses on the conventional generation plants in the 2022 financial year, there is an increased risk of impairment losses in the future. We anticipate further impairment losses on the offshore wind farms due to the fact that they will have successively fewer operating years with EEG funding in the future.

Operative opportunities and risks

13 **Dismantling of nuclear power plants:** For long-term major projects such as the remaining operation and dismantling of a nuclear power plant, there is a general risk that delays and additional costs may arise over the course of time due to changed framework conditions. Moreover, there is also an opportunity to make lasting cost savings due to synergies over the course of time and due to learning effects for subsequent dismantling activities. During the project planning stage, opportunities and risks were identified that could result in reduced or additional costs, or adjustments to the term of the project. There is a low level of opportunity and risk for both 2024 and 2025 with an impact on net debt and thus on the key performance indicator debt repayment potential.

Changes compared to the 2022 financial year

The following opportunities/risks are no longer included in the reporting because they were taken into account in the planning, the level of opportunity/risk has reduced or they were reported under other individual themes:

- Legislative and regulatory consequences
- Non-availability of critical materials and services
- Risks to the procurement and supply chain in the sales environment
- Additional expenses for the grid reserve and redispatch

Link to the key performance indicators

The top opportunities/risks can have an impact on our key performance indicators, whereby the effects on the non-financial key performance indicators are potential and long term in nature and more difficult to measure. They have thus been shown less boldly in the following diagram.

Linking the top opportunities/risks with the key performance indicators

Key performance indicators

Financial performance indicators
- A Adjusted EBITDA
- B Debt repayment potential
- C Share of adjusted EBITDA accounted for by low-risk earnings
- D Proportion of taxonomy-aligned expanded capex

Strategic performance indicators

Overall share of adjusted EBITDA:
- E Smart Infrastructure for Customers
- F System Critical Infrastructure
- G Sustainable Generation Infrastructure

Non-financial performance indicators
- H Reputation Index
- I EnBW / Yello Customer Satisfaction Index
- J SAIDI electricity
- K People Engagement Index (PEI)
- L LTIF for companies controlled by the Group / LTIF overall
- M Installed output of RE and share of generation capacity accounted for by RE
- N CO_2 intensity

Top opportunities/risks	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Cross-segment														
1 Market prices of financial investments		●												
2 Discount rate applied to pension provisions		●												
3 Margins / liquidity requirements		●												
4 State-sponsored cyberattacks due to the war between Russia and Ukraine	●	●	●		●	●	●							○
Smart Infrastructure for Customers														
5 Competitive environment	●	●			●			○	○		○			
6 Incidents relating to battery storage systems	●	●			●			○			○			
Sustainable Generation Infrastructure														
◆ 7 Fluctuations in energy yield in the North Sea and Baltic Sea	●	●	●				●							○
8 Expansion of major projects				●									○	○
9 Hedging	●	●					●							
10 Power plant optimization	●	●					●							○
11 Credit risk in energy trading	●	●					●							
12 Availability of power plants	●	●					●	○						○
13 Dismantling of nuclear power plants		●						○						

● Direct effect
○ Potential / long-term effect
◆ Task Force on Climate-related Financial Disclosures (TCFD)

Overall assessment by the management

The significant increase in interest rates on the capital market could have a negative impact on refinancing costs and, as a result, on the level of debt. The growing threat of state-sponsored cyberattacks around the world continues to pose a high risk and the war between Russia and Ukraine continues to exacerbate the situation. There is still uncertainty with respect to the development of political and economic framework conditions for the energy sector. These factors are also influencing the deployment and availability of our power plants. There continue to be other planning uncertainties, especially with respect to our wind power plants due to natural fluctuations in the wind yield. Although this harbors risks, it can also offer opportunities with respect to the availability and direct distribution of power plant capacities, as well as in the area of hedging.

No risks currently exist that might jeopardize the EnBW Group as a going concern.

Disclosures pursuant to sections 289a (1) and 315a (1) German Commercial Code (HGB) and explanatory report of the Board of Management

In the following, the Board of Management provides the information prescribed by sections 289a (1) and 315a (1) HGB and explains this in accordance with section 176 (1) sentence 1 AktG.

Composition of the subscribed capital and shares in capital

The composition of the subscribed capital is described and explained in the notes to the annual and consolidated financial statements in the section "Equity." Direct or indirect shares in capital that exceed 10% of the voting rights are described and explained in the notes to the annual financial statements in the sections "Shareholder structure" and "Disclosures pursuant to sections 33 ff. German Securities Trading Act (WpHG)" and the notes to the consolidated financial statements in section "Related parties (entities)." Information and explanations about the company's treasury shares are presented below and can be found in note 20 of the notes to the consolidated financial statements (p. 223↗).

Restrictions relating to voting rights or transferability of shares

Agreements were reached on 22 December 2015 between, on the one hand, Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) and OEW Energie-Beteiligungs GmbH and, on the other, the Federal State of Baden-Württemberg, NECKARPRI GmbH and NECKARPRI-Beteiligungsgesellschaft mbH, which include clauses relating to restrictions of authorization over EnBW shares held by these parties and a general mutual obligation of both main shareholders to maintain parity investment relationships in EnBW AG with respect to each other. Restrictions relating to voting rights no longer exist to the knowledge of the Board of Management since the aforementioned direct and indirect EnBW shareholders annulled a shareholder agreement on 22 December 2015 that had previously existed between them.

Legal provisions and statutes on the appointment and dismissal of members of the Board of Management and amendments to the Articles of Association

Pursuant to section 84 AktG in conjunction with section 31 MitbestG, responsibility for the appointment and dismissal of members of the Board of Management rests with the Supervisory Board. This competence is stipulated in article 7 (1) sentence 2 of the Articles of Association of EnBW AG. If, under exceptional circumstances, a necessary member of the Board of Management is missing, section 85 AktG requires that a member of the Board of Management be appointed by the court in urgent cases. The Annual General Meeting has the right to make changes to the Articles of Association in accordance with section 119 (1) no. 6 AktG. The specific rules of procedure are contained in sections 179 and 181 AktG. For practical reasons, the right to amend the Articles of Association was transferred to the Supervisory Board where such amendments affect the wording only. This option pursuant to section 179 (1) sentence 2 AktG is embodied in article 18 (2) of the Articles of Association. Pursuant to section 179 (2) AktG, resolutions by the Annual General Meeting to amend the Articles of Association require a majority of at least three quarters of the capital stock represented when passing the resolution, unless the Articles of Association stipulate a different majority, which, however, for any amendment to the purpose of the company can only be higher. Pursuant to article 18 (1) of the Articles of Association, resolutions by the Annual General Meeting require a simple majority of the votes cast, unless legal regulations or the Articles of Association stipulate otherwise. If the law requires a larger majority of the votes cast or of the capital stock represented when passing the resolution, the simple majority suffices in those cases where the law leaves the determination of the required majority to the Articles of Association.

Authority of the Board of Management regarding the possibility to issue or redeem shares

No authorized or conditional capital nor any authorization of the Annual General Meeting pursuant to section 71 (1) no. 8 AktG for the purchase of treasury shares by the company currently exists at EnBW AG. Therefore, the company may only acquire treasury shares on the basis of other reasons justifying such purchases in accordance with section 71 (1) AktG. As of 31 December 2023, the company holds 5,749,677 treasury shares which were purchased on the basis of earlier authorizations in accordance with section 71 (1) no. 8 AktG. The company's treasury shares can be sold on the stock exchange or by public offer to all company shareholders. The use of treasury shares, in particular their sale, in any other way can only occur within the scope of the resolution issued by the Annual General Meeting on 29 April 2004. The treasury shares held by EnBW AG do not grant the company any rights in accordance with section 71b AktG.

Material agreements of the company subject to the condition of a change of control as a result of a takeover bid and the resulting effects

The following material agreements involving EnBW AG and individual companies in the EnBW Group are subject to the condition of a change of control following a takeover bid as defined by sections 289a (1) no. 8 and 315a (1) no. 8 HGB:

The following material financing agreements of EnBW AG will become due for repayment given a change of control, insofar as the purchaser of the shares is not the Federal State of Baden-Württemberg or Zweckverband OEW or another German state-owned public law legal entity:

- sustainability-linked syndicated credit line with a volume of €1.5 billion
- committed credit lines with banks with a volume of €1.7 billion
- bilateral bank loans with a volume of around €1.8 billion
- promissory notes with a volume of €0.5 billion
- a bond issued under the Debt Issuance Program with a volume of JPY 20 billion
- a US private placement with an equivalent value of around US$0.9 billion

The following material financing agreements of Stadtwerke Düsseldorf AG (SWD AG) will become due for repayment given a change of control, including an indirect change of control, if, after the change of control, the majority of shares in SWD AG are not held directly or indirectly by German legal entities under public law and the City of Düsseldorf does not hold at least 25.05% of the shares in SWD AG:

- promissory notes with a volume of around €0.2 billion
- bank loans/credit lines with a volume of around €0.5 billion

The following material financing agreements of VNG AG will become due for repayment given a change of control, including an indirect change of control, if, after the change of control, the majority of shares in VNG AG are not held directly by German public-sector shareholders or indirectly by these shareholders via controlled legal entities:

- consortium bank loan and bilateral credit lines with a volume of €1.4 billion
- promissory notes with a volume of around €0.3 billion

In the event of a change of control, the financing instruments described above could become due for repayment under the aforementioned conditions, which would mean that the corresponding debt instruments would have to be refinanced – possibly at less favorable conditions.

Compensation agreements pursuant to sections 289a (1) no. 9 and 315a (1) no. 9 HGB

In the event of the premature termination of service on the Board of Management due to a change of control, the possibility of a severance payment for the member of the Board of Management is limited to the pro rata share of annual remuneration(s) for the residual term of the contract. However, the severance payment must not exceed three times the annual remuneration.

Note

Nos. 4 and 5 of sections 289a (1) and 315a (1) HGB were not relevant for EnBW AG in the 2023 financial year.

Indexes and tables

Index for the non-financial declaration of the EnBW Group and EnBW AG

In accordance with sections 315b and 289b German Commercial Code (HGB), the EnBW Group and EnBW AG have been obligated to issue a non-financial declaration since the 2017 financial year. We comply with the requirements by fully integrating the non-financial declaration into the Integrated Annual Report as part of the combined management report of the EnBW Group and EnBW AG. For all of the aspects required by the HGB and also other aspects that are material from the perspective of EnBW, such as standing in society, customer satisfaction and supply quality, we fulfill the obligations by providing information about concepts, results and measures, performance indicators and opportunities and risks.

Non-financial declaration of the EnBW Group and EnBW AG

Description of the business model	p. 17 f.↗
Materiality analysis	p. 43↗
EU taxonomy	p. 107 ff.↗

			TOP Key performance indicators		
Aspects	**Themes**	**Concepts, results and measures**	**Target achievement 2023**	**Forecast 2024**	**Opportunities and risks**
Fighting corruption and bribery	Compliance	p. 39 ff.↗ p. 55 ff.↗	–	–	p. 134↗
Social issues	Corporate citizenship	p. 44 ff.↗	–	–	p. 134↗
Respect for human rights	Procurement	p. 52 ff.↗	–	–	p. 134 f.↗
Standing in society	Reputation		TOP Reputation Index		
		p. 42 ff.↗ p. 87↗	p. 87↗	p. 127↗	p. 135↗
Customer satisfaction	Customer proximity		TOP Customer Satisfaction Index		
		p. 42 ff.↗ p. 87 ff.↗	p. 88↗	p. 127↗	p. 135↗
Supply quality	Supply reliability		TOP SAIDI Electricity		
		p. 92↗	p. 92↗	p. 127↗	p. 135↗
Environmental issues	Expansion of renewable energies		TOP Installed output of RE and share of generation capacity accounted for by RE		
		p. 17 ff.↗ p. 26 ff.↗ p. 93 ff.↗	p. 93 f.↗	p. 128↗	p. 135↗
	CO_2 intensity / climate protection		TOP CO_2 intensity		
		p. 17 ff.↗ p. 26 ff.↗ p. 95 ff.↗	p. 95 ff.↗	p. 128↗	p. 135 f.↗
Employee issues	Engagement of employees		TOP People Engagement Index (PEI)		
		p. 101 ff.↗	p. 101↗	p. 128↗	p. 136↗
	Occupational safety		TOP LTIF for companies controlled by the Group		
		p. 104 ff.↗	p. 105↗	p. 129↗	p. 136↗

The non-financial declaration is issued jointly for the EnBW Group and EnBW AG and, unless stated otherwise, covers the group of consolidated companies in accordance with the International Financial Reporting Standards (IFRS). Any differences between statements made for the Group and for EnBW AG are clearly identified in the text. Information on the business model can be found in the section "Business model" (p. 17 f.↗). We have not identified any material individual risks in the 2023 financial year that have a very high probability of a serious negative impact in relation to the relevant non-financial issues.

Further information on the **GRI content index** can be found on our website.

Online ↗

EnBW has reported in compliance with the GRI Standards for the period from 1 January to 31 December 2023. An audit will be carried out in the second quarter of 2024 as part of the GRI content index service. Our sustainability reporting also complies with the Communication on Progress (COP) requirements for the UN Global Compact and is based to an increasing extent on the UN Sustainable Development Goals. The framework standards and the SDGs have been used as the basis for the non-financial declaration.

Information on the diversity concept can be found in the declaration of corporate management (p. 168↗).

EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft has audited the consolidated financial statements and the combined management report including the contents of the non-financial declaration with reasonable assurance and has thus carried out a complete audit (except for the section "Appropriateness and effectiveness of the risk management system and the internal control system (iRM)" in the "Report on opportunities and risks").

Index for the Task Force on Climate-related Financial Disclosures (TCFD)

EnBW started to implement the recommendations of the TCFD in 2017. This implementation was continued in the current financial year. The index also includes other themes besides these where we are working on the further implementation of the TCFD recommendations.

Task Force on Climate-related Financial Disclosures (TCFD)

TCFD element	Themes	Section	Page reference
Governance	• Corporate management	• Corporate governance	p. 37 f.↗
	• Materiality analysis	• In dialog with our stakeholders	p. 43↗
	• Investment guidelines	• Strategy, goals and performance management system	p. 36↗
		• The EnBW Group	p. 80 f.↗
	• Climate protection initiatives	• In dialog with our stakeholders	p. 43 f.↗
		• Strategy, goals and performance management system	p. 30 ff.↗
	• Overall assessment by the management	• Overall assessment of the economic situation of the Group	p. 123↗
	• Board of Management remuneration	• Corporate governance	p. 37↗
		• The EnBW Group	p. 86↗
Strategy	• Robustness of business model / scenario analysis	• Business model	p. 18 f.↗
	• Strategy, strategic development	• Strategy, goals and performance management system	p. 26 ff.↗
	• Interdependencies	• Strategy, goals and performance management system	p. 35 f.↗
	• Materiality analysis	• In dialog with our stakeholders	p. 43↗
	• Green bonds	• Strategy, goals and performance management system	p. 32↗
		• The EnBW Group	p. 77↗
	• General conditions, climate protection	• General conditions	p. 59↗
Risk management	• Integrated opportunity and risk management including opportunity and risk map	• Report on opportunities and risks	p. 130 ff.↗
	• Environment goal dimension: opportunities and risks	• Report on opportunities and risks	p. 135 f.↗
Performance indicators and targets	• Sustainability ratings	• The EnBW Group	p. 76↗
	• Key performance indicators and long-term targets	• Strategy, goals and performance management system	p. 32 ff.↗
	• Climate protection targets: Science Based Targets (SBT)	• Strategy, goals and performance management system	p. 30 ff.↗
	• Environment goal dimension: key performance indicators and other performance indicators	• The EnBW Group	p. 93 ff.↗
		• Forecast	p. 128↗

Key performance indicators for the EU taxonomy

Revenue

	Code	Revenue	Proportion of revenue	Substantial contribution criteria: Climate protection	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	No significant harm to other EU objectives (DNSH): Climate change mitigation	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	Minimum social safeguards	Taxonomy-aligned proportion of revenue 2022	Category enabling activities	Category transitional activities
		in € million	in %	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	in %	E/-	T/-
A. Taxonomy-eligible activities		**7,778.2**	**17.5**																
A.1 Environmentally sustainable activities (taxonomy-aligned)		**7,222.6**	**16.3**														**13.5**		
Electricity generation via photovoltaic technology	CCM 4.1	59.6	0.1	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.1	–	–
Electricity generation via wind power	CCM 4.3	425.6	1.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.4	–	–
Transmission and distribution of electricity	CCM 4.9	4,694.8	10.6	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	9.3	E	–
Storage of electricity [1]	CCM 4.10	1,520.1	3.4	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	3.1	E	–
Production of biogas and biofuels for the transport sector and liquid biofuels [2]	CCM 4.13	116.0	0.3	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.1	–	–
District heating/cooling distribution	CCM 4.15	3.1	0.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.0	–	–
Electricity generation from fossil gaseous fuels	CCM 4.29	0.0	0.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.0	–	T
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	CCM 4.30	0.0	0.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.0	–	T
Construction, expansion and operation of systems to extract, treat and supply water	CCM 5.1	212.7	0.5	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.4	–	–
Infrastructure for low-carbon road traffic and public transport	CCM 6.15	190.7	0.4	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.2	E	–
Revenue from environmentally sustainable activities (taxonomy-aligned) (A.1)																			
of which enabling activities		6,405.6	14.4	–	–	–	–	–	–	–	yes	yes	yes	yes	yes	yes	12.6	E	–
of which transitional activities		0.0	0.0	–	–	–	–	–	–	–	yes	yes	yes	yes	yes	yes	0.0	–	T
A.2 Taxonomy-eligible activities that are not taxonomy-aligned		**555.6**	**1.3**																
Production of biogas and biofuels for the transport sector and liquid biofuels [2]	CCM 4.13	3.8	0.0	–	–	–	–	–	–	–	–	–	–	–	–	–	0.1	–	–
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	CCM 4.30	551.8	1.3	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0	–	–
Revenue from taxonomy-eligible activities that are not taxonomy-aligned (taxonomy non-aligned activities) (A.2)																			
Total (A.1 + A.2)		**7,778.2**	**17.5**																
B. Taxonomy non-eligible activities		**36,652.5**	**82.5**																
Revenue from non-environmentally sustainable activities (taxonomy-aligned) (B)		**36,652.5**	**82.5**																
Total (A + B)		**44,430.7**	**100.0**																

1 Including 4.5 Electricity generation from hydropower.
2 Including 4.20 Combined heat/cooling and power plants with bioenergy.

Capex[1]

				Substantial contribution criteria						No significant harm to other EU objectives (DNSH)									
	Code	Capex	Proportion of capex	Climate protection	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	Climate change mitigation	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	Minimum social safeguards	Taxonomy-aligned proportion of capex 2022	Category enabling activities	Category transitional activities
		in € million	in %	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	in %	E/-	T/-
A. Taxonomy-eligible activities		**4,194.1**	**86.2**																
A.1 Environmentally sustainable activities (taxonomy-aligned)		**4,191.2**	**86.1**														**82.42**		
Electricity generation via photovoltaic technology	CCM 4.1	74.4	1.5	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	3.00	–	–
Electricity generation via wind power	CCM 4.3	855.5	17.6	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	10.05	–	–
Transmission and distribution of electricity	CCM 4.9	2,359.1	48.5	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	51.73	E	–
Storage of electricity[2]	CCM 4.10	38.9	0.8	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.80	E	–
Production of biogas and biofuels for the transport sector and liquid biofuels[3]	CCM 4.13	11.0	0.2	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.54	–	–
Transmission and distribution networks for renewable and low-carbon gases	CCM 4.14	266.2	5.5	yes	no	no	no	no	no		yes	yes	yes	yes	yes	yes	8.42	–	–
District heating/cooling distribution	CCM 4.15	28.7	0.6	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.39	–	–
Electricity generation from fossil gaseous fuels	CCM 4.29	251.3	5.2	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.99	–	T
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	CCM 4.30	97.4	2.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.94	–	T
Construction, expansion and operation of systems to extract, treat and supply water	CCM 5.1	27.7	0.6	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.64	–	–
Infrastructure for low-carbon road traffic and public transport	CCM 6.15	181.0	3.7	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	4.92	E	–
Capex from environmentally sustainable activities (taxonomy-aligned) (A.1)																			
of which enabling activities		2,579.0	53.0	–	–	–	–	–	–	–	yes	yes	yes	yes	yes	yes	57.4	E	–
of which transitional activities		348.7	7.2	–	–	–	–	–	–	–	yes	yes	yes	yes	yes	yes	1.9	–	T
A.2 Taxonomy-eligible activities that are not taxonomy-aligned		**2.9**	**0.1**																
Production of biogas and biofuels for the transport sector and liquid biofuels[2]	CCM 4.13	0.1	0.0	–	–	–	–	–	–	–	–	–	–	–	–	–	0.00	–	–
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	CCM 4.30	2.8	0.1	–	–	–	–	–	–	–	–	–	–	–	–	–	0.07	–	–
Capex from taxonomy-eligible activities that are not taxonomy-aligned (taxonomy non-aligned activities) (A.2)																			
Total (A.1 + A.2)		**4,194.1**	**86.2**																
B. Taxonomy non-eligible activities		**671.6**	**13.8**																
Capex from non-environmentally sustainable activities (taxonomy-aligned) (B)		**671.6**	**13.8**																
Total (A + B)		**4,865.7**	**100.0**																

1 The figures for the previous year have been restated.
2 Including 4.5 Electricity generation from hydropower.
3 Including 4.20 Combined heat/cooling and power plants with bioenergy.

Opex [1]

	Code	Opex	Proportion of opex	Substantial contribution criteria: Climate protection	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	No significant harm to other EU objectives (DNSH): Climate protection	Climate change adaptation	The sustainable use and protection of water and marine resources	The transition to a circular economy	Pollution prevention and control	The protection and restoration of biodiversity and ecosystems	Minimum social safeguards	Taxonomy-aligned proportion of opex 2022	Category enabling activities	Category transitional activities
		in € million	in %	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	yes/no	in %	E/-	T/-
A. Taxonomy-eligible activities		**369.9**	**23.3**																
A.1 Environmentally sustainable activities (taxonomy-aligned)		**367.3**	**23.2**														**22.9**		
Electricity generation via photovoltaic technology	CCM 4.1	-1.7	-0.1	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.4	–	–
Electricity generation via wind power	CCM 4.3	54.7	3.4	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	4.1	–	–
Transmission and distribution of electricity	CCM 4.9	265.7	16.8	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	15.4	E	–
Storage of electricity [2]	CCM 4.10	14.9	0.9	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	1.0	E	–
Production of biogas and biofuels for the transport sector and liquid biofuels [2]	CCM 4.13	15.9	1.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	1.0	–	–
District heating/cooling distribution	CCM 4.15	0.7	0.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.0	–	–
Electricity generation from fossil gaseous fuels	CCM 4.29	0.0	0.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.0	–	T
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	CCM 4.30	0.0	0.0	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.0	–	T
Construction, expansion and operation of systems to extract, treat and supply water	CCM 5.1	18.8	1.2	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	1.1	–	–
Infrastructure for low-carbon road traffic and public transport	CCM 6.15	-1.7	-0.1	yes	no	no	no	no	no	–	yes	yes	yes	yes	yes	yes	0.0	E	–
Opex from environmentally sustainable activities (taxonomy-aligned) (A.1)																			
of which enabling activities		278.9	17.6	–	–	–	–	–	–	–	yes	yes	yes	yes	yes	yes	16.4	E	–
of which transitional activities		0.0	0.0	–	–	–	–	–	–	–	yes	yes	yes	yes	yes	yes	0.0	–	T
A.2 Taxonomy-eligible activities that are not taxonomy-aligned		**2.5**	**0.2**																
Production of biogas and biofuels for the transport sector and liquid biofuels [3]	CCM 4.13	0.5	0.0	–	–	–	–	–	–	–	–	–	–	–	–	–	0.0	–	–
High-efficiency co-generation of heat/cool and power from fossil gaseous fuels	CCM 4.30	2.0	0.1	–	–	–	–	–	–	–	–	–	–	–	–	–	0.2	–	–
Opex from taxonomy-eligible activities that are not taxonomy-aligned (taxonomy non-aligned activities) (A.2)																			
Total (A.1 + A.2)		**369.8**	**23.3**																
B. Taxonomy non-eligible activities		**1,216.3**	**76.7**																
Opex from non-environmentally sustainable activities (taxonomy-aligned) (B)		**1,216.3**	**76.7**																
Total (A + B)		**1,586.1**	**100.0**																

1 The figures may not add up due to rounding differences.
2 Including 4.5 Electricity generation from hydropower.
3 Including 4.20 Combined heat/cooling and power plants with bioenergy.

Contribution to the environmental objectives of the EU taxonomy

Proportion of taxonomy-aligned and taxonomy-eligible revenue for each environmental objective

in %	Proportion of revenue/total revenue	
	Taxonomy-aligned for each environmental objective	Taxonomy-eligible for each environmental objective
Climate protection	16.3	1.3
Climate change adaptation	0.0	0.0
The sustainable use and protection of water and marine resources	0.0	0.0
The transition to a circular economy	0.0	0.0
Pollution prevention and control	0.0	0.0
The protection and restoration of biodiversity and ecosystems	0.0	0.0

Proportion of taxonomy-aligned and taxonomy-eligible capex for each environmental objective

in %	Proportion of capex/total capex	
	Taxonomy-aligned for each environmental objective	Taxonomy-eligible for each environmental objective
Climate protection	86.1	0.1
Climate change adaptation	0.0	0.0
The sustainable use and protection of water and marine resources	0.0	0.0
The transition to a circular economy	0.0	0.0
Pollution prevention and control	0.0	0.0
The protection and restoration of biodiversity and ecosystems	0.0	0.0

Proportion of taxonomy-aligned and taxonomy-eligible opex for each environmental objective

in %	Proportion of opex/total opex	
	Taxonomy-aligned for each environmental objective	Taxonomy-eligible for each environmental objective
Climate protection	23.2	0.2
Climate change adaptation	0.0	0.0
The sustainable use and protection of water and marine resources	0.0	0.0
The transition to a circular economy	0.0	0.0
Pollution prevention and control	0.0	0.0
The protection and restoration of biodiversity and ecosystems	0.0	0.0

Revenue

Template 1 Nuclear and fossil gas related activities

Row	Nuclear energy related activities	
1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	NO
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	NO
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	YES
Row	Fossil gas related activities	
1.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	YES
2.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	YES
3.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	NO

Template 2 Taxonomy-aligned economic activities (denominator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**7,222.6**	**16.3**	**7,222.6**	**16.3**	**–**	**–**
8.	**Total applicable KPI**	**44,430.7**	**100.0**	**44,430.7**	**100.0**		

Template 3 Taxonomy-aligned economic activities (numerator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI**	**7,222.6**	**100.0**	**7,222.6**	**100.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI**	**7,222.6**	**100.0**	**7,222.6**	**100.0**	**–**	**–**

Template 4 Taxonomy-eligible but not taxonomy-aligned economic activities

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	551.8	1.3	551.8	1.3	–	–
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**3.8**	**0.0**	**3.8**	**0.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI**	**555.6**	**1.3**	**555.6**	**1.3**	**–**	**–**

Template 5 Taxonomy non-eligible economic activities

Row	Economic activities	in € million	%
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	139.6	0.3
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
7.	**Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**36,512.9**	**82.2**
8.	**Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI**	**36,652.5**	**82.5**

Capex

Template 1 Nuclear and fossil gas related activities

Row	Nuclear energy related activities	
1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	NO
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	NO
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	YES
Row	Fossil gas related activities	
1.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	YES
2.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	YES
3.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	NO

Template 2 Taxonomy-aligned economic activities (denominator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	251.3	5.2	251.3	5.2	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	97.4	2.0	97.4	2.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**3,842.5**	**79.0**	**3,842.5**	**79.0**	**–**	**–**
8.	Total applicable KPI	4,865.7	100.0	4,865.7	100.0		

Template 3 Taxonomy-aligned economic activities (numerator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	251.3	6.0	251.3	6.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	97.4	2.3	97.4	2.3	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI**	**3,842.5**	**91.7**	**3,842.5**	**91.7**	**–**	**–**
8.	**Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI**	**4,191.2**	**100.0**	**4,191.2**	**100.0**	**–**	**–**

Template 4 Taxonomy-eligible but not taxonomy-aligned economic activities

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	2.8	0.1	2.8	0.1	–	–
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**0.1**	**0.0**	**0.1**	**0.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI**	**2.9**	**0.1**	**2.9**	**0.1**	**–**	**–**

Template 5 Taxonomy non-eligible economic activities

Row	Economic activities	in € million	%
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.2	0.0
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
7.	**Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**671.4**	**13.8**
8.	**Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI**	**671.6**	**13.8**

Opex

Template 1 Nuclear and fossil gas related activities

Row	Nuclear energy related activities	
1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	NO
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	NO
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	YES
Row	Fossil gas related activities	
1.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	YES
2.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	YES
3.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	NO

Template 2 Taxonomy-aligned economic activities (denominator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**367.3**	**23.2**	**367.3**	**23.2**	**–**	**–**
8.	Total applicable KPI	1,586.1	100.0	1,586.1	100.0		

Template 3 Taxonomy-aligned economic activities (numerator)

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0.0	0.0	0.0	0.0	–	–
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI**	**367.3**	**100.0**	**367.3**	**100.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI**	**367.3**	**100.0**	**367.3**	**100.0**	**–**	**–**

Template 4 Taxonomy-eligible but not taxonomy-aligned economic activities[1]

Row	Economic activities	Amount and proportion (the information is to be presented in monetary amounts and as percentages)					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		in € million	%	in € million	%	in € million	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	2.0	0.1	2.0	0.1	–	–
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–	–	–	–	–
7.	**Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**0.5**	**0.0**	**0.5**	**0.0**	**–**	**–**
8.	**Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI**	**2.5**	**0.2**	**2.5**	**0.2**	**–**	**–**

1 The figures may not add up due to rounding differences.

Template 5 Taxonomy non-eligible economic activities

Row	Economic activities	in € million	%
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	20.0	1.3
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	–	–
7.	**Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI**	**1,196.3**	**75.4**
8.	**Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI**	**1,216.3**	**76.7**

Declaration of the legal representatives

We assure to the best of our knowledge that, in accordance with the applicable accounting principles, the annual and consolidated financial statements give a true and fair view of the net assets, financial position and results of operations of the company and the Group, and that the combined management report gives a true and fair view of the business development including the result and situation of the company and the Group and also describes the significant opportunities and risks relating to the anticipated development of the company and the Group.

Karlsruhe, 11 March 2024

[redacted]

Declaration of corporate management

Good corporate governance is an essential part of the corporate culture at EnBW Energie Baden-Württemberg AG (EnBW). We are convinced that responsible and transparent corporate governance strengthens the trust and confidence that customers, capital providers, employees and the general public place in the company, thereby contributing to its long-term success. The Board of Management and Supervisory Board have the responsibility of managing and supervising the company above and beyond merely fulfilling statutory requirements, but to do so in accordance with recognized benchmarks for good corporate governance and in harmony with the principles of a social market economy, guaranteeing the continued existence of the company and ensuring a sustainable increase in its added value. As the member of the Board of Management responsible for corporate governance, Colette Rückert-Hennen monitored compliance with the German Corporate Governance Code (DCGK) at EnBW and reported extensively to the Board of Management and Supervisory Board on all current themes pertaining to corporate governance. Both boards acknowledged the report from Colette Rückert-Hennen and subsequently approved the company's declaration of compliance, which is reproduced in full at the end of this report.

In this declaration of corporate management, the Supervisory Board and Board of Management report on the corporate governance of the company (corporate governance report) above and beyond the legal requirements according to sections 289f (2) and 315d HGB.

The corporate governance report is based on the new version of the DCGK from 28 April 2022, which was published in the German Federal Gazette on 27 June 2022, because this version of the code was definitive in the reporting period. References to the DCGK in this declaration refer to the version from 28 April 2022.

Board of Management and Supervisory Board

Close and trusting cooperation for the good of the company is considered an integral part of the EnBW culture by the Board of Management and Supervisory Board.

The Board of Management jointly manages the company on its own responsibility. In the reporting period, the Board of Management comprised five members, of which one held the position of Chairman. The Board of Management is tasked with defining the company goals and developing the strategic orientation of the EnBW Group, agreeing this with the Supervisory Board and implementing it accordingly. In addition, the Board of Management ensures Group-wide compliance with statutory regulations and internal guidelines, as well as appropriate risk management and risk controlling.

Although the declaration of corporate management only reports on the situation as of the reporting date and thus exclusively provides information on relevant subject matter in the reporting period, we want to provide the additional information that the Board of Management has comprised four members since 9 March 2024, of which one holds the position of Chairman and one the position of Deputy Chairman. In agreement with the Supervisory Board, Andreas Schell stepped down from his Board of Management mandate and his position as Chairman of the Board of Management as of the end of 8 March 2023. The Supervisory Board appointed Dr. Georg Stamatelopoulos as Chairman of the Board of Management and Thomas Kusterer as Deputy Chairman with effect from 9 March 2024. Dr. Georg Stamatelopoulos will still be responsible for the remit "Sustainable Generation Infrastructure" until his successor has been appointed.

Important aspects of cooperation within the Board of Management are defined in its rules of procedure. These regulate, among other things, the frequency at which the meetings of the Board of Management led by the Chairman are held multiple times a month and stipulate that all important questions relating to the management of the Group and any cross-departmental issues will be addressed at these meetings. Furthermore, the rules of procedure include a rule that resolutions will be taken by the Board of Management on a majority vote basis, whereby the Chairman has the casting vote in the event of a tie.

The **curricula vitae for all members of the Board of Management** can be found on our website.

Online ↗

In the reporting period, the Chairman of the Board of Management was Dr. Andreas Schell. Dr. Georg Stamatelopoulos has been Chairman of the Board of Management and Thomas Kusterer Deputy Chairman since 9 March 2024. Further details on the members of the Board of Management and the division of responsibilities can be found in the information provided on p. 14↗, as well as in the section "Corporate governance" under "Management and supervision" on p. 37↗ of the Integrated Annual Report 2023.

The standard retirement age set for members of the Board of Management at EnBW is 63 years old. In the reporting period and also currently, the members of the Board of Management did not and do not hold more than three positions on supervisory boards at non-Group listed companies or on supervisory bodies at non-Group companies that have comparable requirements. As in the past, there were also no known conflicts of interests for the members of the Board of Management in the 2023 financial year. EnBW did not enter into any significant transactions with individuals or companies that are related to a member of the Board of Management in the reporting period.

In the reporting period, the Board of Management discussed the Six-Monthly Financial Report and the quarterly statements with the audit committee of the Supervisory Board before publication.

The Supervisory Board of EnBW is comprised of 20 members, half of which are representatives elected by the shareholders and half by employees. The Chairman of the Supervisory Board is Lutz Feldmann.

The elected employee and shareholder representatives began their term of office at the conclusion of the Annual General Meeting of EnBW on 5 May 2021. The defined term of office for the elected members of the Supervisory Board ends at the conclusion of the ordinary Annual General Meeting in 2026.

There were changes to the composition of the Supervisory Board in the reporting period.

As previously reported in the declaration of corporate management 2022, the process to elect employee representative members of the Supervisory Board of EnBW Energie Baden-Württemberg AG in accordance with the German Co-Determination Act, which started in October 2020 and was temporarily interrupted due to the coronavirus pandemic, was concluded on 8 February 2023. In the election of the delegates in accordance with the Third Electoral Code to the German Co-Determination Act on 8 February 2023, the current members of the Supervisory Board Achim Binder, Ulrike Weindel, Klarissa Lerp, Stefan Paul Hamm, Michaela Kräutter and Dr. Bernd-Michael Zinow were reelected and the candidates Joachim Rudolf, Bernad Lukacin, Christina Ledong and Thorsten Pfirmann were elected as members of the Supervisory Board for the first time. The four newly elected members of the Supervisory Board replace the former members Dietrich Herd, Thomas Landsbek, Dr. Nadine Müller and Jürgen Schäfer, who all stepped down from the Supervisory Board on 8 February 2023 following the election of their successors.

In addition, Lothar Wölfle (shareholder representative) stepped down from his position as a member of the Supervisory Board as of the end of 13 May 2023. Based on a proposal by the Supervisory Board, the ordinary Annual General Meeting appointed Heiner Scheffold on 3 May 2023 as a member of the Supervisory Board with effect from the start of 14 May 2023 until the end of the regular election period for his predecessor.

Further details on the Supervisory Board and its composition can be found in the information provided on p. 303 ff.↗ and p. 307 ff.↗, as well as in the section "Corporate governance" under "Management and supervision" on p. 38↗of the Integrated Annual Report 2023.

The key task of the Supervisory Board is to advise and supervise the Board of Management on its management of the company. In general, all members of the Supervisory Board have the same rights and obligations and are not bound by orders or instructions. Important aspects of the cooperation within the Supervisory Board are defined in its rules of procedure. These rules require the Supervisory Board to meet regularly for ordinary meetings, as well as for extraordinary meetings as necessary, that are chaired by the Chairman. The members of the Board of Management generally participate in the meetings, although the Supervisory Board can also convene without the Board of Management if necessary. The Board of Management regularly, comprehensively and promptly informs the Supervisory Board in accordance with the rules of procedure for the Supervisory Board about, in particular, all of the issues listed in section 90 of the German Stock Corporation Act (AktG), all important financial and non-financial performance indicators and the risks faced by the company and the Group and their development, strategy, planning, the accounting process, the appropriateness and effectiveness of the internal control system, risk management system and the internal auditing system, compliance and other important matters.

Between the meetings of the Supervisory Board, there is ongoing communication between the Chairman of the Supervisory Board and the Board of Management, particularly with the Chairman of the Board of Management, in order to discuss issues relating to the strategy, planning, business performance, risk situation, risk management and compliance within the company. He is immediately informed about important events that are material for the assessment of the situation, development and management of the company by the Chairman of the Board of Management. If necessary, the Chairman of the Supervisory Board then reports to the Supervisory Board and may also convene an extraordinary meeting.

The **report to the Annual General Meeting** is accessible to the general public here.

Online ↗

In addition, the rules of procedure for the Supervisory Board also define business activities and measures that may only be carried out by the Board of Management with the approval of the Supervisory Board. Furthermore, resolutions are also passed by the Supervisory Board on a majority vote basis, whereby the Chairman of the Supervisory Board has the casting vote in the event of a tie in accordance with the Articles of Association of EnBW. If ordered by the Chairman of the Supervisory Board, resolutions can also be passed outside of meetings, if this is not opposed by a majority of the members of the Supervisory Board. The Supervisory Board provided detailed information on its main activities and the contents of its discussions in the 2023 financial year in its report to the Annual General Meeting. The rules of procedure for the Supervisory Board are not published on the Internet.

Another important task of the Supervisory Board is to appoint and, if necessary, dismiss the members of the Board of Management. In this context, the Supervisory Board works together with the Board of Management to ensure appropriate long-term succession planning for the Board of Management. This is the task of the personnel committee. It consults regularly and in close communication with the Chairman of the Board of Management on issues relating to the up-to-dateness and further development of the Board of Management structure, the division of responsibilities and ensuring the Board of Management remits can be filled after the end of the term of office, taking into account the current terms of office. In advance of any decision to appoint a new member of the Board of Management, a requirement profile is developed in good time as necessary and a comprehensive selection process is usually carried out with the aid of specialist support.

In order to improve the efficiency of its work and to handle complex issues, the Supervisory Board has formed specialist committees:

- **Nomination committee:** Dr. Danyal Bayaz, Dr. Dietrich Birk, Stefanie Bürkle, Lutz Feldmann (Chairman), Dr. Wolf-Rüdiger Michel, Gunda Röstel
- **Audit committee:** Michaela Kräutter, Dr. Hubert Lienhard, Bernad Lukacin, Dr. Wolf-Rüdiger Michel, Thorsten Pfirmann, Gunda Röstel (Chairwoman), Heiner Scheffold, Ulrike Weindel
- **Personnel committee:** Dr. Danyal Bayaz, Achim Binder, Stefanie Bürkle, Lutz Feldmann (Chairman), Stefan Paul Hamm, Joachim Rudolf
- **Finance and investment committee:** Dr. Danyal Bayaz, Achim Binder, Dr. Dietrich Birk, Stefanie Bürkle, Lutz Feldmann (Chairman), Stefan Paul Hamm, Joachim Rudolf, Dr. Bernd-Michael Zinow
- **Mediation committee** (pursuant to section 27 (3) German Co-determination Act (MitbestG)): Dr. Danyal Bayaz, Achim Binder, Lutz Feldmann (Chairman), Klarissa Lerp
- **Digitalization committee:** Christina Ledong, Dr. Hubert Lienhard (Chairman), Bernad Lukacin, Marika Lulay, Harald Sievers, Ulrike Weindel
- **Ad hoc committee:** Achim Binder, Gunda Röstel, Harald Sievers, Dr. Bernd-Michael Zinow (Chairman)
- **Special committee** (until 3 May 2023): Dr. Danyal Bayaz, Achim Binder, Lutz Feldmann (Chairman), Stefan Paul Hamm, Gunda Röstel, Joachim Rudolf, Lothar Wölfle, Dr. Bernd-Michael Zinow

In order for the Supervisory Board to optimally perform its functions, it formed a special committee at its meeting on 29 September 2022 with immediate effect that served until the end of the day of the Annual General Meeting of EnBW Energie Baden-Württemberg AG on 3 May 2023. This special committee examined, in particular, the impact of the war between Russia and Ukraine on the business of EnBW and its subsidiaries. The special committee comprised four members of the Supervisory Board who were shareholder representatives and four members who were employee representatives.

In accordance with the DCGK, the nomination committee exclusively comprises shareholder representatives and proposes suitable candidates to the Supervisory Board for election as members of the Supervisory Board at the Annual General Meeting.

The audit committee is responsible, in particular, for monitoring accounting, the accounting process, the appropriateness and effectiveness of the internal control system, the risk management system, the internal auditing system, the audit and compliance. It presents a justified recommendation for the appointment of the auditor to the Supervisory Board, which includes at least two candidates if the company intends to issue an invitation to tender for the audit mandate in accordance with article 16 (3) EU Regulation 537/2014. The audit committee monitors the independence of the auditor and is also responsible for supervising the additional services provided by the auditor, the award of the audit mandate to the auditor, the definition of areas of focus for the audit, monitoring the quality of the audit and negotiating the auditor's fees with the auditor.

The Chairwoman of the audit committee, Gunda Röstel, is independent and is not a former member of the Board of Management of EnBW. As the long-standing Commercial Director of Stadtentwässerung Dresden GmbH and Authorized Officer of Gelsenwasser AG, she possesses expertise in the field of accounting and special knowledge and experience in the application of accounting principles and internal control and risk management systems. As a result, and also through her position as Chairwoman of the audit committee for several years, she also possesses expertise in the field of auditing. She has special knowledge and experience in this field that also covers the aspect of sustainability reporting and its auditing, which has already been practiced at EnBW for several years with the participation of Mrs. Röstel. In her position as the Chairwoman of the audit committee over the last few years, she has gained even more expertise in the aforementioned fields. As a long-standing chief executive and member of management boards at various companies and in his role as a member of the audit committee over many years, Dr. Hubert Lienhard also has expertise in the fields of accounting and auditing, including special knowledge and experience in the application of accounting principles and with internal control and risk management systems, as well as in the area of auditing including sustainability reporting and its auditing.

The full version of the **Report of the Supervisory Board** is published here.

Online ↗

The roles of the other committees of the Supervisory Board and their specific activities in the past financial year are described in the Report of the Supervisory Board for the 2023 financial year.

The chairpersons of the committees report on the work carried out in their committees at the latest at the next plenary meeting of the Supervisory Board. No separate rules of procedure exist for the Supervisory Board committees; they are subject to the rules of procedure for the Supervisory Board and all relevant procedural rules contained therein.

The Supervisory Board has set specific objectives for its composition that take into account the company's situation and has developed a competency profile for the entire Supervisory Board, whereby the special rules defined in the German Co-determination Act and associated legislation were and are taken into account for employee representatives. The primary aim is to guarantee that the members collectively possess the knowledge, skills and specialist experience required to properly perform their functions.

The objectives for the composition of the Supervisory Board that are currently valid and were valid during the entire reporting period appropriately take into account the international activities of the company, potential conflicts of interest, an appropriate number of independent members in the estimation of the Supervisory Board, age limits for members of the Supervisory Board apart from the exception described below, a maximum time limit for the period of service on the Supervisory Board and diversity, whereby the special rules defined in the German Co-determination Act and associated legislation were and are taken into account for employee representatives.

In the past reporting year, the Supervisory Board also examined the independence criteria defined in the German Stock Corporation Act and the DCGK. The Supervisory Board came to the conclusion that these criteria have – as in the past – been satisfied and that it comprised and still comprises a sufficient number of independent members and reflects the shareholder structure, whereby it is of the opinion that all shareholders on the Supervisory Board are independent in the sense of the DCGK and this proportion of members is appropriate. Refer to the overview on p. 303 f.↗ of the Integrated Annual Report 2023 for the names of the shareholder representatives on the Supervisory Board.

Alongside the successfully achieved objective of continuing to ensure a majority of independent members, the Supervisory Board will take care to avoid any conflicts of interest also in future.

The Supervisory Board does not believe that it is necessary to define quantitative objectives with respect to internationality due to the structure and business activities of the company. The newly added recommendation in the DCGK in 2022 that the competency profile for the Supervisory Board should also cover expertise on sustainability issues that are significant to the company has already been fulfilled by the competency profile for the EnBW Supervisory Board since 2017. The rules of procedure for the Supervisory Board stipulate that candidates proposed to the Annual General Meeting for the election of shareholder representatives as members on the Supervisory Board should generally not be older than 70 at the time of the election. This general age limit was exceeded in the reporting period by Dr. Hubert Lienhard. However, there are no doubts surrounding the suitability of Dr. Hubert Lienhard as a member of the Supervisory Board. On the contrary, the membership of Dr. Hubert Lienhard on the Supervisory Board also clearly serves the interests of the company. As the Supervisory Board is aware that exceptions may be desirable because long-term members of the Supervisory Board bring long-standing knowledge and experience to the board, it has ultimately defined a maximum time limit for the period of service on the Supervisory Board of three full election periods, which was not reached or exceeded during the reporting period or currently by any member of the Supervisory Board.

The Supervisory Board has not defined any further diversity targets beyond the legal regulations that apply to the company for the minimum proportion of women and men and the previously described objectives for its composition.

Competency profile of the Supervisory Board

- Finances and accounting
- Strategy and innovation
- Law, corporate governance and compliance
- Communication
- Business fields
- Board of Management and HR issues
- Regulation and politics
- Sustainability and environment

The competency profile of the Supervisory Board stipulates that the eight fields of competency of particular significance to the company shown in the diagram must be covered to an appropriate extent by the members of the Supervisory Board in its entirety.

The Supervisory Board possesses the knowledge and skills required to perform its functions. The objectives for its composition were fully taken into account by the Supervisory Board during the reporting period with respect to its composition and the appropriate coverage of its competency profile. The Supervisory Board is convinced that the competency profile is appropriately covered when each of the eight fields of competency of particular significance to the company are covered by several members of the Supervisory Board. However, it does not strive to ensure that every field of competency is covered by all members of the Supervisory Board (which would correspond to a coverage rate of 100%) as this would be unrealistic for a Supervisory Board with a diverse composition. In the 2023 financial year, the Supervisory Board in its entirety had the following coverage rates for the eight fields of competency, whereby the Supervisory Board successfully covered its defined competency profile:

Field of competency	Coverage by members of the Supervisory Board
Finances and accounting	55%
Strategy and innovation	50%
Law, corporate governance and compliance	30%
Communication	50%
Business fields	45%
Board of Management and HR issues	70%
Regulation and politics	55%
Sustainability and environment	60%

In its future proposals to the Annual General Meeting for the election of members, the Supervisory Board will continue to take into account the objectives for its composition and will strive to ensure that the competency profile continues to be covered by the Supervisory Board in its entirety.

The **curricula vitae for all members of the Supervisory Board** can be found on our website.

Online ↗

The curricula vitae for all members of the Supervisory Board have been published on the company website and provide information on the relevant knowledge, skills and experience of the members and have been supplemented by an overview of their main activities in addition to their position on the Supervisory Board. These curricula vitae are updated on an annual basis for all members of the Supervisory Board.

The members of the Supervisory Board are all able to dedicate the expected amount of time required for their activities on the Supervisory Board. The Supervisory Board will also ensure for its future proposals to the Annual General Meeting for the election of new members of the Supervisory Board that all candidates are able to dedicate the expected amount of time required for their activities on the Supervisory Board. In the 2023 financial year, the majority of the members of the Supervisory Board participated in more than half of the meetings of the Supervisory Board and the majority of the members of the Supervisory Board participated in more than half of the meetings of the committees on which the member serves; this was also noted in the Report of the Supervisory Board to the Annual General Meeting. Participation via telephone and videoconference is also valid, although this form of participation was not a normal occurrence for any member of the Supervisory Board in accordance with the suggestion in the DCGK, except for those meetings of the Supervisory Board in which all members participated via an electronic form of communication. In the reporting period, all meetings of the Supervisory Board were held in person. Some meetings of its committees were held in digital form via telephone and videoconference.

In its proposals made to the Annual General Meeting for the forthcoming by-election of members, the Supervisory Board will also disclose the personal and business relationships of each candidate with the company, the company's corporate bodies and with shareholders holding a major interest in the company, whereby this information will be limited to information that the Supervisory Board considers material in order for a shareholder to cast their vote objectively.

No former members of the Board of Management of EnBW were members of the Supervisory Board during the reporting period nor are they currently members. The members of the Supervisory Board also did not perform any advisory or board functions for important competitors of EnBW during the reporting period nor do they currently.

Every member of the Supervisory Board is bound to act in the interests of the company. In making decisions, members may not pursue personal interests or take advantage of business opportunities intended for the company. Conflicts of interest, particularly those that could arise due to advisory or board functions for customers, suppliers, lenders or other third parties, must be disclosed to the Supervisory Board. In such cases, the Supervisory Board will disclose any conflicts of interest that have arisen and how they were handled in its report to the Annual General Meeting. Any material conflict of interest relating to a member of the Supervisory Board that is not merely of a temporary nature will result in the termination of their position. Advisory and other service agreements and contracts for work between a member of the Supervisory Board and EnBW require the approval of the Supervisory Board.

The Supervisory Board regularly assesses how effectively the Supervisory Board as a whole and its committees are performing their duties (self-assessment). The Supervisory Board last carried out a self-assessment at its meeting on 10 November 2023. To prepare for the review, the members of the Supervisory Board completed a comprehensive questionnaire on content-related and organizational themes as in previous years and discussed, among other things, the results of the questionnaires in detail. In addition, the implementation of the findings drawn from the efficiency review from the previous year were examined.

The members of the Supervisory Board are responsible for participating in any necessary basic and further training measures required for their tasks and are supported appropriately and as necessary by the company in this area. This not only includes providing them with regular information on themes and developments related to the current situation of the company with respect to legal issues, the energy industry, financial industry or other relevant aspects, as well as other subjects relevant to the work on the Supervisory Board, but also comprises corresponding on-site appointments and events. In 2023, the company provided the Supervisory Board with the opportunity to take a further training course on the topics "basic information on sustainability/SBTi" and "in-depth information on the climate and benchmarking" on 3 March 2023. Numerous members of the Supervisory Board participated. Furthermore, the Supervisory Board were provided with information on the challenges posed by the energy transition from the perspective of a transmission grid operator and the tasks and challenges involved in managing the system as part of a meeting on-site at the central control station of TransnetBW on 27 September 2023. An e-learning platform designed for supervisory boards that is managed and continuously updated by an external service provider is also available for further training purposes.

In accordance with the corresponding suggestion in the DCGK, the Chairman of the Supervisory Board is prepared to enter into discussions with investors on specific issues relating to the Supervisory Board. Discussions of this type were not held in the reporting period.

The actions of the Board of Management and the Supervisory Board are governed by statutory regulations and internal Group guidelines (compliance). The Board of Management also reported continuously on compliance issues in the 2023 financial year and discussed them in detail with the Supervisory Board and the audit committee of the Supervisory Board. More detailed information on this area will be provided in the "Compliance" section below. Information on the relevant corporate governance practices that go above and beyond the legal requirements and the recommendations and suggestions in the DCGK will also be given there.

The **Articles of Association** are accessible to the general public here.

Online ↗

Further information – above and beyond that provided above – on the procedures of the Board of Management and Supervisory Board and its committees, as well as on corporate governance practices, can be found in the section "Corporate governance" under "Management and supervision" on p. 37 f.↗ of the Integrated Annual Report 2023, in the "Report of the Supervisory Board" on p. 10 ff.↗ of the Integrated Annual Report 2023 and in articles 7 to 13 and 19 of the Articles of Association.

Diversity

The Supervisory Board has decided that all of the statutory and self-defined regulations for its composition (objectives for the composition, competency profile, legal targets for the proportion of women, age limit, maximum time limit for the period of service, see here the information above in the section "Board of Management and the Supervisory Board" on p. 162 ff.↗) will form the diversity concept in the sense of section 289f (2) no. 6 HGB. The primary goal of this concept is to ensure that the Supervisory Board can properly perform its tasks and is helped in this process by the diversity of its composition. This concept is implemented through the election of shareholder representatives by the Annual General Meeting. In the reporting period, the objectives defined in the concept were achieved.

The proportion of women on the Supervisory Board in its entirety continuously stood at at least 30% in the reporting period. This figure was calculated from the proportion of women among the shareholder representatives of 30% and the proportion of women among the employee representatives of 40%. The proportion of women on the Supervisory Board of EnBW in its entirety of 35% fulfills the minimum statutory requirement of 30%. The shareholder and employee representatives resolved before the last election of members to the Supervisory Board to veto the overall fulfillment of this statutory minimum proportion by the shareholder and employee representatives combined in accordance with section 96 (2) sentence 3 AktG for the length of the current election period, so that the minimum proportion in accordance with the legal requirements must be fulfilled by both sides. This should make it possible to better plan the composition of the Supervisory Board.

In terms of the composition of the Board of Management, the Supervisory Board also takes diversity into account when appointing new members of the Board of Management, while acknowledging the limited number of members of the Board of Management. Therefore, it has resolved that the standard age limit for the Board of Management defined by the Supervisory Board together with the target for the proportion of women will form the diversity concept in the sense of section 289f (2) no. 6 HGB. The primary goal of this concept is to ensure that the Board of Management can properly perform its tasks and is strengthened here by the diversity of its composition. This concept is implemented through the appointment of members of the Board of Management by the Supervisory Board. In the reporting year, the objectives defined in the concept were achieved.

For the period from 1 July 2017 until 30 June 2022, the Supervisory Board had set the target of one woman on the Board of Management that should be achieved at least by the end of this defined time period. This target has been met since the start of the term of office of Colette Rückert-Hennen on 1 March 2019. No target was defined for the period from 1 July 2022 onwards because there is no longer any obligation to set a target for the Board of Management according to the legal regulation in section 111 (5) sentence 9 AktG.

The Board of Management has set the goal of further increasing the proportion of women at both management levels below the Board of Management in the period from 1 January 2021 to 31 December 2025. At both the first level (top management) and second level (upper management), the proportion of women should increase to at least 20%. This target was not yet achieved in the reporting period in top management. Nevertheless, it was possible to increase the proportion of women from 11.1% in the previous year to 15.4% in the reporting period. In upper management, the proportion of women increased from 23.1% in the previous year to 24.7% in the reporting period, which meant that the set targets were still achieved at the second level. We will continue to develop measures based on the HR strategy to achieve and stabilize the set targets.

Shareholders and Annual General Meeting

All **documents for the Annual General Meeting** are accessible to the general public on our website.

Online ↗

The shareholders of EnBW exercise their rights at the Annual General Meeting, including their right to vote. Prior to the Annual General Meeting, EnBW publishes the agenda and all of the relevant reports and documents that shareholders may require to evaluate it. These include the current annual report for the last completed financial year, which is available in an easily accessible format on the Internet. Any counter motions to items on the agenda of the Annual General Meeting received by the specified deadline are also made publicly available on the website.

Our shareholders have the opportunity to use a proxy appointed by the company if they are not able to personally attend the Annual General Meeting.

The ordinary Annual General Meeting 2023 took place in virtual form without the physical presence of shareholders or their proxies. Video and audio of the Annual General Meeting were broadcast online for shareholders and their representatives via a password-protected Investor Portal. In addition, the Annual General Meeting was broadcast live on the Internet as it was in the last few years until the end of the speech by the Chairman of the Board of Management.

Compliance

Compliance as an expression of all measures required for the observance of statutory regulations and internal guidelines is regarded as an essential management and supervisory task at EnBW. Since 2009, the compliance department has established a Group-wide compliance organization and defined the necessary rules and processes. The compliance department is responsible for the prevention, detection and sanctioning of corruption, the prevention of violations against competition and antitrust laws and the prevention of money laundering. The topic of data protection is the responsibility of the legal, market, data protection and digital business models department.

The regular in-person training events – which were supplemented by online training events in the reporting year – cover the latest compliance and data protection issues. One of the main focuses of the compliance activities is conveying a compliance culture. Providing advice and completing regular risk assessments are also part of the compliance activities. In cooperation with the internal audit department, control measures to ensure compliance with internal guidelines are implemented. The selective internationalization of EnBW is being accompanied by the compliance and data protection departments.

The most important compliance functions for the Group are represented on the compliance committee. The compliance department uses this body to coordinate the Group-wide compliance activities. Implementation of the centrally defined compliance measures in the decentralized units is controlled through the compliance forum, which is comprised of compliance officers from the most important Group companies and business units.

Preventative compliance measures are defined using a Group-wide compliance risk assessment on an annual basis as part of the compliance and data protection program of EnBW. These include communication and training measures, the introduction and development of rules and processes, central management of guidelines and business partner auditing. The compliance culture is an aspect taken into account in all of the compliance activities. In particular, training measures are not only designed to convey knowledge but also to reinforce attitudes among employees for compliance-conforming activities, so that they can make their own contribution to the avoidance of compliance breaches.

Internal and external whistleblowers can report compliance breaches and suspected cases to the compliance department, to an ombudsperson commissioned for this purpose by EnBW as an external point of contact or since August 2023 via a digital whistleblower tool on the Internet. The ombudsperson can guarantee whistleblowers absolute confidentiality and anonymity with respect to EnBW. It is also possible to submit anonymous reports using the whistleblower tool. Reported compliance breaches and suspected cases are then handled by the compliance committee task force using a standardized process. The Head of Compliance reports on the status of the implementation of measures and on current compliance breaches to the Board of Management and audit committee of the Supervisory Board every quarter. An annual report is prepared for the Supervisory Board.

The compliance management system (CMS) is aligned to the risk situation of the company and continuously updated and examined.

Remuneration of the Board of Management and the Supervisory Board

The **remuneration report** is available as a separate report **together with other documents** on our website.

Online ↗

The remuneration of the Board of Management and the Supervisory Board are both presented in a detailed remuneration report. This can be found in a separate report on the company website. We refer you to this report at this point. The system of variable remuneration for the Board of Management that was resolved by the Supervisory Board in 2023 and approved by the Annual General Meeting on 3 May 2023 is described in detail in the remuneration report for the Board of Management. The documents described above that have to be made accessible according to sections 289f and 315d HGB are publicly available for download on the EnBW website. This declaration of corporate management is also publicly available there.

Transparency

Information on the business situation of EnBW is made available to the public on our website.

Online ↗

EnBW ensures the transparency stipulated in the DCGK at all times by keeping shareholders, the capital market, financial analysts, shareholder associations and the interested public up to date on material business changes at the company. In order to provide consistent information in good time to all interested groups, the company mainly relies on the Internet.

In particular, EnBW provides information on its business situation in the Integrated Annual Report, interim financial information, the press conference on the annual results, telephone conferences for investors and analysts to accompany the publication of quarterly and annual results and at other events such as investor conferences. The corresponding documents are publicly available on the EnBW website. The financial calendar also published on our website provides adequate notice of the publication dates for the Integrated Annual Reports and interim financial information, as well as the date of the Annual General Meeting, the press conference for the annual results and investor conferences.

If specific information on a matter relating to EnBW or the shares and bonds issued by EnBW which is not public knowledge should become available outside the regular reporting framework that could significantly influence the stock prices of these securities, we announce this insider information in the form of ad hoc notifications. In the 2023 financial year, ad-hoc notifications were published on 14 February 2023, 4 May 2023, 4 August 2023 and 31 October 2023.

In the 2023 financial year, EnBW did not receive any notices about transactions involving EnBW shares, EnBW bonds, emission allowances or related financial instruments by persons in managerial positions or those persons closely related to them. There were also no securities subject to disclosure requirements held by any members of the Board of Management or the Supervisory Board.

Financial reporting and the audit

Financial reporting at EnBW is carried out in accordance with the requirements of the International Financial Reporting Standards (IFRS), and, where applicable, the German Commercial Code (HGB) and German Accounting Standards (GAS). The Annual General Meeting on 3 May 2023 elected EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft, Stuttgart, as auditor of the financial statements and the consolidated financial statements for the 2023 financial year and as auditor for the review of the condensed financial statements and interim management report contained in the Six-Monthly Financial Report, as well as for all reviews of additional interim financial information in the sense of section 115 (7) of the German Securities Trading Act (WpHG) in the 2023 financial year. At the same time, EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft was elected as the auditor for the review of all additional interim financial information in the sense of section 115 (7) WpHG in the 2024 financial year, insofar as such a review is carried out before the next Annual General Meeting.

The audit committee and its Chairwoman also commissioned EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft to audit the non-financial declaration published for the reporting period.

The Board of Management discussed the interim financial information with the audit committee before its publication. The consolidated financial statements for the 2023 financial year were made available to the public within 90 days of the end of the financial year and the Quarterly Statements and the Six-Monthly Financial Report for the 2023 financial year were made available within 45 days after the end of the relevant reporting period.

EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft was commissioned by the audit committee and its Chairwoman to perform the audit. The audit committee ensured in advance of the Annual General Meeting on 3 May 2023 that there was no doubt concerning the independence of the auditing firm to be commissioned and received a declaration of independence before submitting the proposal for the appointment of the auditor. This declaration also included the scope of other services, especially in the consultancy sector, which were provided to EnBW and its Group companies in the past financial year or have been contractually agreed for the following financial year. The agreement with the auditor stipulates that the audit committee must be informed immediately about any grounds for exclusion or conflicts of interest that arise during the audit unless such grounds are immediately eliminated. In addition, it was also agreed that the auditor would immediately inform the audit committee on all facts and events significant to the tasks of the Supervisory Board that come to the attention of the auditor during the performance of the audit and that the auditor would inform the Supervisory Board or make a corresponding note in the audit report if facts were uncovered during the performance of the audit that demonstrate that the declaration of compliance issued by the Board of Management and Supervisory Board in accordance with section 161 AktG is incorrect. Furthermore, it was ensured in accordance with article 5 EU Regulation 537/2014 that neither the auditor nor any member of his network provided prohibited non-audit services to EnBW or EnBW Group companies. The audit committee discussed the audit risk assessment, audit strategy, audit planning and audit results with EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft. The Chairwoman of the committee regularly discussed the progress of the audit with the auditor and reported on this to the committee. Both the audit committee and its Chairwoman regularly consulted with the auditor, sometimes without the presence of the Board of Management. EnBW did not have any share option programs or similar securities-based incentive schemes for the company in the reporting period nor does it currently have such programs or schemes.

In accordance with article 16 of the EU Audit Regulation (EU Regulation No 537/2014 of 16 April 2014), the audit committee of the Supervisory Board carried out a selection process in 2022 for the audit of the separate and consolidated financial statements of EnBW Energie Baden-Württemberg AG and certain separate financial statements and subgroup financial statements for Group companies integrated into the EnBW consolidated financial statements for the period covering the 2024 to 2028 financial years. At the end of this selection process, the audit committee of the Supervisory Board recommended – and provided reasons for the recommendations – of BDO AG Wirtschaftsprüfungsgesellschaft, Hamburg, and EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft, Stuttgart, for the period covering the 2024 to 2028 financial years. The Supervisory Board was notified that the preferred choice of the audit committee was BDO AG Wirtschaftsprüfungsgesellschaft, Hamburg, and was provided with the reasons for this decision. The audit committee also declared that its recommendation was free of any undue influence from third parties and emphasized, in particular, that there was no clause of the type described in article 16 (6) of EU Regulation 537/2014 of 16 April 2014 that could have restricted its choice to certain auditors. On 8 December 2022, the Supervisory Board decided, based on the recommendation and preference of its audit committee and following the selection process carried out in accordance with article 16 of the EU Audit Regulation (EU Regulation No 537/2014 of 16 April 2014), to select the company BDO AG Wirtschaftsprüfungsgesellschaft for the audit of the separate and consolidated financial statements of EnBW Energie Baden-Württemberg AG and the separate financial statements and subgroup financial statements of certain EnBW Group companies for the period covering the 2024 to 2028 financial years and to propose this company to the Annual General Meeting as auditor of the financial statements and the consolidated financial statements for the previously stated period. This decision was taken more than one year before the first audit period to ensure compliance with the prescribed one-year "cooling-in" phase before the start of the audit period covered by the new auditor and the members of its network that is stipulated in article 5 (1) b of the EU Audit Regulation (EU Regulation No 537/2014 of 16 April 2014). The ordinary Annual General Meeting 2024 will be presented with a proposal for the election of BDO AG Wirtschaftsprüfungsgesellschaft as auditor of the financial statements and the consolidated financial statements for the 2024 financial year.

Declaration of compliance

In accordance with section 161 AktG, the Board of Management and the Supervisory Board of EnBW Energie Baden-Württemberg AG declared on 7 December 2023 that: "Since its last declaration of compliance on 8 December 2022, EnBW Energie Baden-Württemberg AG complied with the recommendations of the Government Commission for the German Corporate Governance Code in the version published in the German Federal Gazette on 28 April 2022, with the exception of the following deviations described and will also comply with the recommendations in this version of the Code in future with the following exceptions:

Publication of the rules of procedure of the Supervisory Board (Recommendation D.1 DCGK)

The procedures of the Supervisory Board and the composition and procedures of the committees of the Supervisory Board are described in detail in the declaration of corporate management according to section 289f (2) no. 3 HGB, which is published on an annual basis. In addition, the annual, written Report of the Supervisory Board according to section 171 (2) AktG reports in detail on the work of the Supervisory Board and its committees. Against this background, the Board of Management and Supervisory Board do not consider it expedient to also publish the rules of procedure of the Supervisory Board as they contain details on the rules at a technical level that will not provide any information of additional value to shareholders, which is why the recommendation in D.1 of the Code is not followed.

Disclosure of the composition of a peer group of other third-party entities to assess the total remuneration of the members of the Board of Management (Recommendation G.3 sentence 1 DCGK)

A horizontal comparison of other third-party entities as proposed by the recommendation in G.3 sentence 1 of the Code would result in a considerable administrative burden with respect to the procurement and evaluation of data, especially as the composition of a specific peer group would be subject to constant change. A horizontal comparison would thus be associated with considerable costs on a regular basis due to the commissioning of external consulting services.

Therefore, it is preferable to not always automatically carry out a specific peer group comparison each time remuneration is defined or examined, even if a horizontal comparison per se or a specific peer group comparison are generally expedient, and thus to continue only carrying out this process from time to time to compare the customariness of the total remuneration of the members of the Board of Management to other third-party entities.

Should a horizontal comparison be carried out from time to time based on a company-specific peer group comparison, the Board of Management and Supervisory Board believe that it is not expedient to publish the composition of the peer group because the composition of the peer group may allow conclusions to be drawn about the strategic considerations of the Supervisory Board, which should not be accessible to competitors. In the interests of the company, the recommendation in G.3 sentence 1 of the Code is, therefore, not followed.

Comprehensibility of the target achievement for members of the Board of Management (Recommendation G.9 sentence 2 DCGK)

The law for the implementation of the European Union's second shareholder rights directive ("ARUG II") introduced a new remuneration report in section 162 AktG that contains detailed information on the remuneration of the members of the Board of Management, including minimum and maximum values for the performance indicators for the STI and LTI. The publication of further information on any additional qualitative criteria that are defined annually by the Supervisory Board for the STI remuneration would reveal sensitive company information about strategic targets. This information should not be accessible to competitors, which is why in the interests of the company the recommendation in G.9 sentence 2 of the Code is not followed.

The granting of variable remuneration to the Board of Management in company shares (Recommendation G.10 sentence 1 DCGK)

Section G.10 of the Code recommends that the variable remuneration for members of the Board of Management should be predominantly invested in company shares or granted as share-based remuneration. Based on the fact that only 0.39% of the share capital of EnBW Energie Baden-Württemberg AG is in free float and the EnBW share is thus a narrow-market security with reduced liquidity on the stock exchange, it is not expedient to implement this recommendation at the company. Therefore, the recommendation in G.10 sentence 1 of the Code is not followed.

Accessibility of the long-term variable remuneration components to members of the Board of Management (Recommendation G.10 sentence 2 DCGK)

In its recommendation in G.10 sentence 2, the Code proposes that members of the Board of Management shall be able to access granted long-term variable remuneration components only after a period of four years. The intention behind this recommendation in the Code is to create greater incentive for sustainable business activities. The long-term variable remuneration components for members of the Board of Management of EnBW Energie Baden-Württemberg AG are based on a three-year measurement period. For the Board of Management and Supervisory Board, it is not clear why, and the European Commission has not given any further justification as to why, a four-year period should be advantageous at all in comparison to a three-year period. Due to the fact that the three-year period applied up to now has proven successful in the last few years and an extension is not considered expedient, the recommendation in G.10 sentence 2 of the Code is not followed.

This declaration of compliance and the declarations from previous years are published here.

Online ↗

The declaration was also published separately. This page also includes a link to the download center where all of the declarations of compliance of EnBW published since 2002 are available.

Karlsruhe, 11 March 2024

EnBW Energie Baden-Württemberg AG

On behalf of the Board of Management	On behalf of the Supervisory Board
Colette Rückert-Hennen	Lutz Feldmann

Financial statements of the EnBW Group

Income statement

in € million	Notes	2023	2022	Change in %
Revenue including electricity and energy taxes		44,916.6	56,524.0	-20.5
Electricity and energy taxes		-485.9	-521.4	-6.8
Revenue	(1)	**44,430.7**	**56,002.6**	**-20.7**
Changes in inventories		146.3	51.9	–
Other own work capitalized		355.1	305.3	16.3
Other operating income	(2)	4,507.4	7,348.0	-38.7
Cost of materials	(3)	-35,725.3	-51,148.4	-30.2
Personnel expenses	(4)	-2,895.2	-2,591.8	11.7
Impairment losses [1]	(26)	-276.6	-112.3	146.3
Other operating expenses	(5)	-4,804.1	-5,382.1	-10.7
EBITDA		**5,738.3**	**4,473.2**	**28.3**
Amortization and depreciation	(6)	-2,397.0	-2,332.0	2.8
Earnings before interest and taxes (EBIT)		**3,341.3**	**2,141.2**	**56.0**
Investment result	(7)	-89.2	276.8	–
of which net profit/loss from entities accounted for using the equity method		(-114.5)	(23.9)	–
of which other profit/loss from investments		(25.3)	(252.9)	(-90.0)
Financial result	(8)	-411.3	-22.6	–
of which finance income		(860.2)	(1,039.2)	(-17.2)
of which finance costs		(-1,271.5)	(-1,061.8)	(19.7)
Earnings before tax (EBT)		**2,840.8**	**2,395.4**	**18.6**
Income tax	(9)	-1,008.2	-551.5	82.8
Group net profit		**1,832.6**	**1,843.9**	**-0.6**
of which profit/loss shares attributable to non-controlling interests		(295.0)	(105.9)	–
of which profit/loss shares attributable to the shareholders of EnBW AG		(1,537.6)	(1,738.0)	(-11.5)
EnBW AG shares outstanding (million), weighted average		**270.855**	**270.855**	**0.0**
Diluted earnings per share from Group net profit (€) [2]	(25)	**5.68**	**6.42**	**-11.5**
Basic earnings per share from Group net profit (€) [2]	(25)	**5.68**	**6.42**	**-11.5**

1 According to IFRS 9.
2 In relation to the profit/loss attributable to the shareholders of EnBW AG.

Statement of comprehensive income

in € million [1, 2]	Notes	2023	2022	Change in %
Group net profit		**1,832.6**	**1,843.9**	**-0.6**
Revaluation of pensions and similar obligations	(21)	-534.3	2,388.9	–
Entities accounted for using the equity method	(13)	0.8	-0.1	–
Income taxes on other comprehensive income	(9)	151.4	-610.0	–
Total of other comprehensive income and expenses without future reclassifications impacting earnings		**-382.1**	**1,778.8**	**–**
Currency translation differences		-29.0	66.1	–
Cash flow hedge	(26)	-1,179.3	2,171.2	–
Financial assets at fair value in equity	(14)	200.6	-232.4	–
Entities accounted for using the equity method	(13)	-2.8	2.8	–
Income taxes on other comprehensive income	(9)	254.6	-585.7	–
Total of other comprehensive income and expenses with future reclassifications impacting earnings		**-755.9**	**1,422.0**	**–**
Total other comprehensive income		**-1,138.0**	**3,200.8**	**–**
Total comprehensive income		**694.6**	**5,044.7**	**-86.2**
of which profit/loss shares attributable to non-controlling interests		(144.1)	(83.8)	72.0
of which profit/loss shares attributable to the shareholders of EnBW AG		(550.5)	(4,960.9)	-88.9

1 The figures for the previous year have been restated. The basis adjustments in inventories in cash flow hedge are no longer disclosed in total other comprehensive income. The figure for the previous year has been adjusted by the effect of the basis adjustments in the amount of €622.9 million and income tax in the amount of €–185.0 million. Further information can be found in the statement of changes in equity.
2 Further information is available in the notes under (20) "Equity."

Balance sheet

in € million	Notes	31/12/2023	31/12/2022
Assets			
Non-current assets			
Intangible assets	(10)	3,166.2	3,218.2
Property, plant and equipment	(11), (12)	25,429.8	22,705.3
Entities accounted for using the equity method	(13)	1,393.4	1,134.0
Other financial assets	(14)	6,628.5	6,560.1
Trade receivables	(15)	370.1	329.4
Other non-current assets	(16)	2,298.0	2,957.6
Deferred taxes	(22)	226.0	79.4
		39,512.0	36,984.0
Current assets			
Inventories	(17)	2,804.0	3,835.7
Financial assets	(18)	3,078.1	1,348.3
Trade receivables	(15)	4,575.6	5,591.3
Other current assets	(16)	8,754.1	15,261.0
Cash and cash equivalents	(19)	5,995.1	6,475.6
		25,206.9	32,511.9
Assets held for sale	(24)	0.0	7.8
		25,206.9	32,519.7
		64,718.9	69,503.7
Equity and liabilities			
Equity	(20)		
Shares of the shareholders of EnBW AG			
Subscribed capital		708.1	708.1
Capital reserve		774.2	774.2
Revenue reserves		8,559.5	7,272.7
Treasury shares		-204.1	-204.1
Other comprehensive income		-529.0	412.1
		9,308.7	8,963.0
Non-controlling interests		6,544.3	3,806.3
		15,853.0	12,769.3
Non-current liabilities			
Provisions	(21)	11,410.9	10,483.9
Deferred taxes	(22)	835.6	958.1
Financial liabilities	(23)	15,003.5	11,927.3
Other liabilities and subsidies	(23)	3,462.7	4,695.2
		30,712.7	28,064.5
Current liabilities			
Provisions	(21)	2,528.7	3,346.8
Financial liabilities	(23)	1,464.2	963.9
Trade payables	(23)	5,049.9	8,443.3
Other liabilities and subsidies	(23)	9,110.4	15,915.9
		18,153.2	28,669.9
		64,718.9	69,503.7

Cash flow statement

in € million[1,2]	Notes	2023	2022
1. Operating activities			
Group net profit		1,832.6	1,843.9
Income tax	(9)	1,008.2	551.5
Investment and financial result	(7), (8)	500.5	-254.2
Amortization and depreciation	(6)	2,397.0	2,332.0
Change in provisions excluding obligations from emission allowances	(21)	203.9	36.2
Result from disposals of assets	(2), (5)	0.3	-3.4
Other non-cash-relevant expenses/income	(2), (3), (5)	626.7	-1,248.3
Change in assets and liabilities from operating activities		-4,762.8	-1,224.9
Net balance of inventories and obligations from emission allowances	(17)	(-398.9)	(-2,624.8)
Net balance of trade receivables and payables, services not yet invoiced and payments on account that have been made and received	(15), (23)	(-3,152.2)	(2,592.2)
Net balance of other assets and liabilities	(16), (23)	(-1,211.7)	(-1,192.3)
Income tax paid	(9), (16), (23)	-906.7	-227.9
Cash flow from operating activities		**899.7**	**1,804.8**
2. Investing activities			
Capital expenditure on intangible assets and property, plant and equipment	(10), (11)	-4,403.8	-2,770.7
Disposals of intangible assets and property, plant and equipment	(10), (11)	50.7	57.9
Cash received from subsidies for construction cost and investments	(23)	104.5	106.4
Cash paid for the acquisition of companies and interests in entities accounted for using the equity method as well as in joint operations	(13)	-215.7	-110.4
Cash received from the sale of companies and interests in entities accounted for using the equity method as well as in joint operations	(13)	0.0	24.7
Cash payments for securities, financial investments and other financial assets	(14), (18), (23)	-5,992.8	-4,817.6
Cash received for securities, financial investments and other financial assets	(14), (18), (23)	4,130.3	4,347.8
Interest received	(8)	331.7	122.4
Dividends received	(7)	198.1	304.6
Cash flow from investing activities		**-5,797.0**	**-2,734.9**
3. Financing activities			
Interest paid	(8)	-421.2	-318.8
Dividends paid	(20)	-417.1	-399.4
Cash received for changes in ownership interest without loss of control	(20)	1,487.4	303.3
Cash paid for changes in ownership interest without loss of control		0.0	-1.6
Increase in financial liabilities	(23)	4,964.2	17,900.4
Repayment of financial liabilities	(23)	-1,372.9	-16,222.1
Repayment of lease liabilities	(12)	-175.2	-183.3
Cash received for capital increases in non-controlling interests	(20)	624.6	43.0
Cash paid for capital reductions in non-controlling interests	(20)	-17.9	-42.8
Other cash paid at non-controlling interests	(18)	-252.6	-344.1
Cash flow from financing activities		**4,419.3**	**734.6**
Net change in cash and cash equivalents	**(19)**	**-478.0**	**-195.5**
Change in cash and cash equivalents due to changes in the consolidated companies	(19)	6.4	0.3
Net foreign exchange difference and other changes in cash and cash equivalents	(19)	-8.9	17.7
Change in cash and cash equivalents	**(19)**	**-480.5**	**-177.5**
Cash and cash equivalents at the beginning of the period	(19)	6,475.6	6,653.1
Cash and cash equivalents at the end of the period	**(19)**	**5,995.1**	**6,475.6**

1 Further information is available in the notes under (33) "Notes to the cash flow statement."
2 The figures for the previous year have been restated. Further information is available in the notes under (33) "Notes to the cash flow statement."

Statement of changes in equity

in € million[1,2]	Subscribed capital and capital reserve[3]	Revenue reserves	Treasury shares	Other comprehensive income: Revaluation of pensions and similar obligations	Currency translation differences	Cash flow hedge	Financial assets at fair value in equity	Entities accounted for using the equity method	Shares of the shareholders of EnBW AG	Non-controlling interests	Total
Notes				(20), (21)		(20), (26)	(14), (20)	(13), (20)			
As of 01/01/2022	**1,482.3**	**5,742.1**	**-204.1**	**-2,559.3**	**43.0**	**136.0**	**9.3**	**-1.9**	**4,647.4**	**3,851.9**	**8,499.3**
Other comprehensive income				1,759.8	51.6	1,572.7	-163.9	2.7	3,222.9	-22.1	**3,200.8**
Group net profit		1,738.0							1,738.0	105.9	**1,843.9**
Total comprehensive income	**0.0**	**1,738.0**	**0.0**	**1,759.8**	**51.6**	**1,572.7**	**-163.9**	**2.7**	**4,960.9**	**83.8**	**5,044.7**
Derecognition in the cost of hedged items						-437.9			-437.9	0.0	**-437.9**
Dividends		-297.9							-297.9	-193.2	**-491.1**
Change in non-controlling interests due to the sale of shares		90.8							90.8	197.9	**288.7**
Change in non-controlling interests due to the acquisition of shares									0.0	-1.8	**-1.8**
Other changes[4]		-0.3							-0.3	-132.3	**-132.6**
As of 31/12/2022	**1,482.3**	**7,272.7**	**-204.1**	**-799.5**	**94.6**	**1,270.8**	**-154.6**	**0.8**	**8,963.0**	**3,806.3**	**12,769.3**
Other comprehensive income				-379.3	5.6	-752.9	141.6	-2.1	-987.1	-150.9	**-1,138.0**
Group net profit		1,537.6							1,537.6	295.0	**1,832.6**
Total comprehensive income	**0.0**	**1,537.6**	**0.0**	**-379.3**	**5.6**	**-752.9**	**141.6**	**-2.1**	**550.5**	**144.1**	**694.6**
Derecognition in the cost of hedged items						30.9			30.9	0.0	**30.9**
Dividends		-297.9							-297.9	-350.9	**-648.8**
Acquisition of subsidiaries with non-controlling interests									0.0	-4.5	**-4.5**
Change in non-controlling interests due to the sale of shares		47.1				15.1			62.2	2,227.2	**2,289.4**
Other changes[4]									0.0	722.1	**722.1**
As of 31/12/2023	**1,482.3**	**8,559.5**	**-204.1**	**-1,178.8**	**100.2**	**563.9**	**-13.0**	**-1.3**	**9,308.7**	**6,544.3**	**15,853.0**

1 The figures for the previous year have been restated. A separate line item has been added to disclose basis adjustments in inventories in the cash flow hedge. This led to a reduction in total other comprehensive income for the previous year of €437.9 million.
2 Further information is available in the notes under (20) "Equity."
3 Of which subscribed capital €708.1 million (31/12/2022: €708.1 million, 01/01/2022: €708.1 million) and capital reserve €774.2 million (31/12/2022: €774.2 million, 01/01/2022: €774.2 million).
4 Of which capital increases by minority shareholders of €847.8 million (previous year: €43.0 million). Of which capital reductions by minority shareholders of €113.9 million (previous year: €177.3 million).

Notes to the 2023 financial statements of the EnBW Group

General principles

In accordance with section 315e (1) German Commercial Code (HGB), EnBW Energie Baden-Württemberg AG (EnBW), as the highest-level parent company in the EnBW Group, prepares the consolidated financial statements according to the International Financial Reporting Standards (IFRS), the adoption of which is mandatory in the European Union as of the reporting date. The IFRIC Interpretations (IFRIC) promulgated by the IFRS Interpretations Committee are also taken into account. IFRS and interpretations whose application is not yet mandatory are not adopted. The consolidated financial statements therefore comply with those IFRS and interpretations issued by the International Accounting Standards Board (IASB), which have been endorsed by the EU.

The consolidated financial statements are presented in millions of euros (€ million). The income statement as well as the statement of comprehensive income, the balance sheet, the cash flow statement and the statement of changes in equity of the EnBW Group are presented separately. In the interest of clarity, items have been combined in the income statement and in the balance sheet, and disclosed separately and explained in the notes. Rounding differences may occur due to the methods used to carry out the calculations.

The income statement has been prepared using the nature of expense method.

Significant events in the reporting period are described in the section "The EnBW Group" of the management report.

The consolidated financial statements are prepared as of the reporting date of the parent company's financial statements. The parent company's financial year is the calendar year.

The registered office of the company is in Karlsruhe, Germany. The address is EnBW Energie Baden-Württemberg AG, Durlacher Allee 93, 76131 Karlsruhe. It is entered at the District Court of Mannheim under HRB no. 107956.

EnBW's principal activities are described in the segment reporting.

EnBW's Board of Management prepared and released the consolidated financial statements for issue on 11 March 2024.

Consolidation principles

The financial statements of the domestic and foreign companies included in the consolidation were prepared in a standardized manner in accordance with the accounting policies that are applicable at EnBW. Business combinations are accounted for using the acquisition method. The cost of a business combination is measured based on the fair value of the assets acquired and liabilities assumed or entered into as of the acquisition date. Non-controlling interests are measured at the proportionate fair value of the identified assets and the liabilities assumed. Incidental acquisition costs are expensed as incurred. If the business combination is achieved in stages, the acquisition-date fair value of the acquirer's previously held equity interest in the acquiree is remeasured to fair value at the acquisition date through profit or loss when the acquirer obtains control. Any excess of the cost of a business combination plus the amount of any non-controlling interest in the acquiree over the acquired identifiable assets, assumed liabilities and contingent liabilities is reported as goodwill if positive or, if negative, is reassessed and recognized through profit or loss.

A change in the ownership interest in an entity that continues to be fully consolidated is accounted for as an equity transaction. All remaining interests are remeasured at fair value upon loss of control.

Receivables, liabilities and provisions between the consolidated entities are netted. Intercompany income is set off against the corresponding expenses. Intercompany profits and losses are eliminated unless they are not of minor importance.

Consolidated companies

In accordance with the full consolidation method, all subsidiaries under the control of the Group are included. The Group controls an associate if it is exposed to risks or has rights to variable returns as a result of its involvement in the associate, and the Group has the ability to use its power over the associate in a way that affects the amount of the returns from the associate. In the full consolidation process, the assets and liabilities of a subsidiary are included in the consolidated financial statements in their entirety.

The equity method is used when there is a joint arrangement in the form of a joint venture or a significant influence may be exercised over the business policy of the associate, but the entity does not qualify as a subsidiary.

Joint arrangements that are classified as joint operations are reported based on the proportion of the assets, liabilities, income and expenses which are attributable to us in compliance with the respective applicable IFRS.

Interests in subsidiaries, joint ventures or associates that, in the Group's opinion, are of minor significance, are recognized at amortized cost. Indicators for determining the materiality of subsidiaries are the revenue, earnings and equity of these companies. Investments of <20% are recognized at fair value.

There are no reciprocal shareholdings in the EnBW Group as defined by section 19 (1) German Stock Corporation Act (AktG).

The consolidated companies are as follows:

Type of consolidation

Number of companies	31/12/2023	31/12/2022
Fully consolidated companies	256	235
Entities accounted for using the equity method	25	26
Joint operations	3	3

Changes in the consolidated companies

Of the companies included in the consolidated financial statements by way of full consolidation, 10 (previous year: 8) domestic companies and 16 (previous year: 1) foreign companies were consolidated for the first time in the reporting year. A total of 2 (previous year: 0) domestic companies and 1 (previous year: 2) foreign company were deconsolidated. Gains and losses on deconsolidation were immaterial in both the reporting year and the previous year. In addition, 2 (previous year: 2) domestic companies and no (previous year: 1) foreign companies were merged.

First-time full consolidation of affiliated entities 2023

EnBW acquired several smaller companies in the 2023 financial year. The considerations paid of €74.2 million included €61.7 million in the form of cash and cash equivalents. There were no significant incidental acquisition costs incurred as part of the transactions. The value of the non-controlling interests was calculated pro rata based on the identifiable net assets. The amount reported for goodwill is preliminary due to the fact that the analysis of the fair value of the assets and liabilities has not yet been concluded. In particular, it represents synergies in the area of generation and sales and is not deductible for tax purposes.

Following their full consolidation, the acquired companies contributed €29.3 million to revenues and €9.6 million to earnings after income taxes in the 2023 financial year. If they had been fully consolidated since the beginning of the year, Group revenue would have increased by €42.2 million to €44,472.9 million, and earnings after income taxes would have increased by €10.9 million to €1,808.0 million.

The following assets and liabilities were taken over as part of the acquisition:

in € million	Fair value
Intangible assets	34.5
Property, plant and equipment	60.4
Other non-current assets	2.3
Cash and cash equivalents	28.5
Other current assets	43.5
Total assets	**169.2**
Non-current liabilities	82.1
Current liabilities	32.0
Total liabilities	**114.1**
Net assets [1]	55.1
Net assets allocated to non-controlling interests	(14.7)
Net assets attributable to the shareholders of EnBW AG	(40.4)
Consideration paid	**74.2**
Considerations paid allocated to non-controlling interests	(19.2)
Goodwill	**14.6**

1 The calculation of the fair value of these assets and liabilities has not yet been concluded because analyses relating to the assets and liabilities are still outstanding. Therefore, provisional values have been stated in accordance with IFRS 3.45.

The fair value of the trade receivables acquired as part of the business combination stood at €11.6 million. There were no material individual impairment losses. The total amount of the trade receivables was largely collected so that the gross value corresponded to the fair value of the trade receivables.

Deconsolidation of fully consolidated companies 2023

Deconsolidation of bmp greengas GmbH

bmp greengas GmbH, Munich, filed an application to open protective shield proceedings on 25 May 2023. The order from the District Court of Munich to begin preliminary insolvency proceedings under self-administration on 30 May 2023 led to a significant and prolonged restriction in the rights of the parent company with respect to the assets and management of bmp greengas GmbH and thus to a loss of control for the period of the insolvency proceedings under self-administration. Other operational expenditure of €4.2 million was realized as a result of the deconsolidation. bmp greengas GmbH is a leading distributor of biomethane in Europe and an expert in green gases.

Changes in the shareholdings in fully consolidated companies 2023

Sale of interest in EnBW He Dreiht GmbH & Co. KG

EnBW sold 49.9% of its shareholding in EnBW He Dreiht GmbH & Co. KG, Biberach an der Riß (formerly EnBW He Dreiht GmbH, Varel) on 31 July 2023 to APKV Direkt Infrastruktur GmbH, Munich, Allianz Leben Direkt Infrastruktur GmbH, Munich, AZ-SGD Direkt Infrastruktur GmbH, Munich, AIP II Holding 8 K/S, Copenhagen/Denmark and NBIM Germany ReInfra AS, Oslo/Norway. Our shareholding in EnBW He Dreiht GmbH & Co. KG fell to 50.1% as a result of this transaction. EnBW He Dreiht GmbH & Co. KG will continue to be included as a fully consolidated company in the consolidated financial statements of EnBW. The proceeds from the disposal of the shares were €311.1 million which were paid to EnBW in cash and cash equivalents. Transaction costs of €7.0 million were incurred. The value transferred to the non-controlling interest was €196.9 million. The difference between the disposal proceeds (after transaction costs and taxes) and the value transferred to the non-controlling interest of €105.3 million was recognized in equity under revenue reserves.

Sale of interest in EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG

EnBW sold 24.95% of its shareholding in EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG, Karlsruhe, on 30 November 2023 to SWK Holding GmbH, Stuttgart, and a further 24.95% of its shareholding to Expand Netzbetreiber GmbH, Frankfurt am Main, a subsidiary of KfW. EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG holds 100% of the shares in TransnetBW GmbH. Our shareholding in EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG fell to 50.1% as a result of this transaction. EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG and its subsidiary TransnetBW will continue to be included as fully consolidated companies in the consolidated financial statements of EnBW. The non-controlling interest was assigned a value of €2,045.4 million. The difference between the disposal proceeds (after interest, transaction costs of €12.1 million and taxes) and the value transferred to the non-controlling interest of €–58.1 million was recognized in equity under revenue reserves. The majority of the proceeds were paid in cash and cash equivalents in the reporting year, while the remaining payment will be made by 2028 at the latest.

Changes in the shareholdings in fully consolidated companies 2022

Sale of interest in SunInvest GmbH & Co. KG

EnBW sold 49.9% of its shareholding in SunInvest GmbH & Co. KG, Stuttgart, to Windpark Uetze Ost GmbH & Co. KG, Munich, on 30 September 2022. Our shareholding in SunInvest GmbH & Co. KG fell to 50.1% as a result of this transaction. SunInvest GmbH & Co. KG will continue to be included as a fully consolidated company in the consolidated financial statements of EnBW. The proceeds from the disposal of the shares were €301.5 million and were paid to EnBW in cash and cash equivalents. Transaction costs of €7.5 million were incurred. The value transferred to the non-controlling interest was €195.7 million. The difference between the disposal proceeds (after transaction costs and taxes) and the value transferred to the non-controlling interest of €91.3 million was recognized in equity under revenue reserves.

in € million	2022
Consideration received (less costs to sell and taxes)	287.0
Shares allocated to non-controlling interests	195.7
Non-operating amount recognized under revenue reserves	91.3

Changes in accounting policies

First-time adoption of amended accounting standards

The International Accounting Standards Board (IASB) adopted the following new standards and amendments to existing standards whose application is mandatory as of the 2023 financial year:

First-time adoption of amended accounting standards

Announcement	Changes	Mandatory adoption for the EnBW Group	Impact on the EnBW consolidated financial statements
Amendments to IAS 1: Disclosures of Accounting Policies	Companies must now only disclose their material accounting policies rather than their significant accounting policies.	01/01/2023	No material impact.
Amendments to IAS 8: Definition of Accounting Estimates	Clarification of the distinction between changes to accounting policies and changes to accounting estimates.	01/01/2023	No material impact.
Amendments to IAS 12: Deferred Tax Related to Assets and Liabilities Arising from a Single Transaction	Clarification that the recognition exemption for deferred taxes does not apply to cases in which the initial recognition of an asset and a liability gives rise to equal taxable and deductible temporary differences.	01/01/2023	No material impact.
Amendments to IAS 12: International Tax Reform — Pillar Two Model Rules	Exception to the obligation to recognize deferred taxes that arise from the introduction of the Pillar Two model rules, with extended obligations for disclosure in the notes.	01/01/2023	No material impact.
Insurance Contracts and Amendments to IFRS 17	IFRS 17 covers the accounting of insurance contracts by the insurer and replaces the previous standard IFRS 4.	01/01/2023	No material impact.

Effects of new accounting standards that are not yet mandatory

The IASB published the following amendments to standards whose adoption is not yet mandatory for the 2023 financial year. Their application in the future is subject to their endorsement by the EU into European law. There are no plans for premature application.

Effects of new accounting standards that are not yet mandatory

Announcement	Changes	Mandatory adoption for the EnBW Group [1]	Expected impact on the EnBW consolidated financial statements
Amendments to IAS 1: Classification of Liabilities as Current or Non-current	Clarification of the requirements for classifying debt as current or non-current.	01/01/2024	No material impact.
Amendments to IAS 1: Non-current Liabilities with Covenants	Clarification that only covenants that must be complied with on or before the reporting date are relevant for classifying the debt as current or non-current, as well as disclosure obligations for the notes.	01/01/2024	No material impact.
Amendments to IAS 7 and IFRS 7: Supplier financing agreements	Additional disclosure obligations related to supplier financing agreements (reverse factoring).	01/01/2024	No material impact.
Amendments to IAS 21: Lack of Exchangeability	Clarification of which exchange rate to use when the spot exchange rate is not observable.	01/01/2025	No material impact.
Amendments to IFRS 16: Lease Liability in a Sale and Leaseback	Refinement of the valuation of lease liabilities so that no profit or loss related to a retained right-of-use is recognized.	01/01/2024	No material impact.

1 This date refers to the intended date of adoption according to the IASB insofar as the endorsement by the EU into European law is still pending.

Significant accounting policies

Intangible assets

Intangible assets acquired for a consideration are carried at amortized cost and, except for goodwill, are amortized using the straight-line method over their useful life. The amortization period of purchased software ranges from three to five years; the amortization period of concessions for power plants is between 15 and 65 years. Customer relationships are amortized over their expected useful life of between 4 and 30 years. Concession agreements in the areas of electricity, gas, district heating and water are in place between individual entities in the EnBW Group and the municipalities. Concession agreements are amortized over their term (generally 20 years).

Internally generated intangible assets are recognized at cost if it is probable that a future economic benefit from the use of the assets will flow to the company and the cost of the asset can be reliably determined. At the EnBW Group, these assets relate to software programs that are amortized on a straight-line basis over a useful life of five years. If the recognition criteria are not satisfied, costs are expensed immediately through profit or loss in the year in which they were incurred.

The useful lives and amortization methods are reviewed regularly.

In accordance with the provisions of the IFRS, goodwill from business combinations is not amortized, but tested for impairment at least once a year and whenever there is any indication that the recoverable amount may be lower than the carrying amount.

Property, plant and equipment

Items of property, plant and equipment are measured at cost. Items that are subject to wear and tear are depreciated using the straight-line method over the expected useful life of their individual components. Depreciation is recorded pro rata temporis in the year of addition.

Maintenance and repair costs are recorded as expenses. Renewal or maintenance expenses which lead to future economic benefits of an asset are capitalized.

Construction cost subsidies and household connection costs, as well as investment grants and subsidies, are not deducted from the cost of the asset concerned, but recognized on the liabilities side of the balance sheet.

The power plants also contain the present value, net of depreciation, of the estimated cost of decommissioning. Changes in estimates relating to decommissioned power plants are recognized through profit or loss. Any changes in estimates relating to power plants that are currently in operation due to changes in assumptions concerning the future development of costs are generally recognized without effect on profit or loss by adjusting the appropriate balance sheet items. If the respective property, plant and equipment are already fully depreciated, the change in estimate is recognized in the income statement.

Depreciation on our major items of property, plant and equipment is computed using the following uniform Group-wide useful lives:

Useful life

in years	
Buildings	25–50
Power plants	10–50
Electricity distribution plants	25–45
Gas distribution plants	5–55
Water distribution plants	15–40
District heat distribution plants	15–30
Telecommunications distribution facilities	4–20
Other equipment, factory and office equipment	4–14

The useful lives and amortization methods are reviewed regularly. Property, plant and equipment are derecognized upon disposal or when no further economic benefits are expected from their continued use or sale. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the income statement in the period the asset is derecognized.

Borrowing costs

If a qualifying asset requires a substantial period of time (more than twelve months) to be made ready for its intended use, the borrowing costs incurred until it is ready for its intended use that are directly attributable to its acquisition or production are capitalized as part of the respective asset. Where there are specific debt financing arrangements, the respective borrowing costs incurred are recognized. Where the debt financing arrangements are not specific, borrowing costs are capitalized using a uniform rate within the Group of 2.9% (previous year: 1.5%). Borrowing costs totaling €83.2 million were capitalized in the current financial year (previous year: €26.1 million).

Leases

For more information, please refer to note (12) "Leases."

A lease is an agreement that conveys the right to use an asset for a period of time in exchange for the payment of a consideration. The rights of use to the leased assets must, in general, be reported for all leases in which the EnBW Group is the lessee. These are recognized under property, plant and equipment. Correspondingly, the payment obligations from leases must be reported as lease liabilities. In subsequent valuations, the right-of-use assets are depreciated over the term of the lease. The lease liabilities, which are reported under other liabilities, are determined based on the present value of the payment obligations arising from the lease and recognized accordingly using the effective interest method. The lease payments considered in this process are discounted using the interest rate implicit in the lease, insofar as this can be determined. Otherwise, the payments are discounted using the incremental borrowing rate. In the case of power purchase agreements (PPA), the EnBW Group purchases generated electricity and the associated guarantees of origin from a renewable energy power plant that belongs to the supplier. This arrangement is considered to be a lease according to IFRS 16 if EnBW generally takes all of the output produced by the power plant and can also decide how the power plant is deployed.

In the case of short-term leases and leases involving low-value assets, the option of using the simplified approach is utilized and the lease payments are recognized as an expense in the income statement. Moreover, the option not to separate lease and non-lease components is utilized, except in the case of leases for vehicles, real estate and gas caverns.

Leases where the EnBW Group as lessor transfers substantially all the risks and rewards of ownership of the leased asset to the lessee are classified as finance leases. In this case, a receivable is recognized for the amount of the net investment in the lease. The payments made by the lessee are split into repayments for the principal and interest income and recognized accordingly using the effective interest method. All other leases are classified as operating leases. In the latter cases, the leased asset is reported under property, plant and equipment and depreciated over its useful life. The payments made by the lessee are recognized as income on a straight-line basis over the term of the lease.

Entities accounted for using the equity method

At the time of acquisition they are recognized at cost and subsequently recognized according to the amortized proportionate net assets. The carrying amounts are increased or reduced each year by the proportionate profit or loss, dividends paid and other changes in equity. This means that when shareholdings are being measured, only the company's proportional equity, rather than its assets and liabilities, is shown in the consolidated financial statements. Any goodwill is included in the stated value of the shareholding in question. Any negative differences are recognized in profit or loss in the investment result. If the losses attributable to EnBW at a company accounted for using the equity method equal or exceed the value of the interest in this company, no further loss is recorded unless EnBW has assumed obligations, or made payments, on behalf of the company. The interest in the company accounted for using the equity method is the carrying amount of the investment, plus any long-term interests that, in substance, form part of EnBW's net investment in the company.

Impairment losses/reversals of impairment losses

The carrying amounts of intangible assets, property, plant and equipment, investment properties and entities accounted for using the equity method are tested for impairment when circumstances or events indicate that there could be an impairment or increase in value. If such indications exist, the recoverable amount of the asset concerned is determined through impairment testing. The recoverable amount is the higher of the fair value less costs to sell and the value in use.

The fair value is determined on the basis of a business valuation model and reflects the best estimate of the amount at which a third party would acquire the asset. The business valuation models utilize cash flow plans approved by the Board of Management that are based on, among other things, the medium-term plans valid as of the date of the impairment test. The three-year medium-term plans are created at the level of the individual business units and consolidated to form plans for the Group. These plans are based on past experience and on estimates concerning future market developments, in general, as well as in specific sectors. A longer detailed planning period is utilized if necessitated by commercial or regulatory requirements, or in the case of finite evaluations especially in the Sustainable Generation Infrastructure segment.

Key assumptions underlying the determination of fair value less costs to sell include projections of future electricity and gas prices, raw materials prices, company-specific investing activities, the regulatory framework as well as growth and discount rates. In the case of extended detailed planning periods, the future development of the European electricity and gas markets is modeled using different scenarios. All of the assumptions described above are based on internal and external estimates and also take climate-related effects into account. For example, the impact of the German climate targets and the company's own climate targets are taken into account in the scenarios for determining expected long-term commodity prices.

For further information on the scenarios, please refer to the section "Disclosures on climate change."

Discounting is carried out based on the weighted average cost of capital (WACC) or, at entities accounted for using the equity method, generally on the basis of the cost of equity. The cost of equity is determined from the expected return on a long-term risk-free federal bond plus a company-specific risk premium. Borrowing costs are derived using the basic interest rate plus a risk premium. The risk premium takes into account an adequate risk premium for a peer group, while the discount rates used for the individual cash-generating units take into account the equity structures of a peer group and a country-specific risk.

The value in use corresponds to the present value of the future cash flows expected to be derived from an asset or cash-generating unit. A cash-generating unit is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. If it is not possible to determine the recoverable amount for an individual asset, the recoverable amount is determined for the cash-generating unit (CGU) to which the asset can be allocated. In order to take account of expected price-related and volume-related growth, constant growth rates of 0.0% to 1.5% (as in the previous year) are used to extrapolate the cash flows beyond the detailed planning period for all cash-generating units that have an unlimited time period as a basis.

For more information, please refer to note (10) "Intangible assets."

Goodwill arising from business combinations is allocated to the cash-generating units or groups of cash-generating units (CGUs) that are expected to achieve synergies from the business combination.

The carrying amount of these CGUs is tested for impairment at least once a year. An additional test is performed whenever there is any indication that the carrying amount may not be recoverable.

If the recoverable amount of an asset falls short of its carrying amount, an impairment loss is recognized in profit or loss immediately. For impairment losses on CGUs to which goodwill has been allocated, the goodwill is reduced first. If the impairment loss exceeds the carrying amount of the goodwill, the difference is allocated proportionally to the remaining non-current assets of the CGU.

If the reason for a previously recognized impairment loss no longer exists at a later date, the impairment loss is reversed. The increased carrying amount of the asset attributable to a reversal may not exceed the carrying amount that would have been determined had no impairment loss been recognized in previous years (amortized cost).

An impairment loss recognized for goodwill may not be reversed in a subsequent period. Accordingly, impairment losses on goodwill are not reversed.

Investment properties

Investment properties include land and buildings which are held to earn rental income or for capital appreciation and are not used by EnBW itself. Investment properties are measured at cost less depreciation and, for the term of their finite useful life, are depreciated over a term of 25 to 50 years using the straight-line method.

Financial assets

For financial assets, a differentiation is made between debt instruments and equity instruments. Debt instruments are split into three business models: "hold," "hold to collect and sell" and "other." The business models determine the measurement categories for the debt instruments. The "hold" business model includes trade receivables, lease receivables and loans, which are generally held to maturity and are thus allocated to the "measured at amortized cost" measurement category. Trade receivables mainly comprise contracts with customers. Receivables are recognized as such at the time a good is delivered or after the conclusion of an associated performance period, because this is the point in time at which there is an unconditional claim to receipt of the consideration and only the passage of time is required until the payment is due. As in the previous year, loans subject to market interest rates are recognized at nominal value and low-interest or interest-free loans at present value. The "hold to collect and sell" business model comprises fixed-income and floating-rate interest securities. These are allocated to the "measured at fair value through profit or loss" or "measured at fair value in equity" measurement categories. A cash flow characteristics test in accordance with IFRS 9 is carried out for these securities to test whether the cash flows arise exclusively to make interest and redemption payments on the outstanding amount. The securities that do not pass the cash flow characteristics test are measured at fair value in equity, otherwise the securities are measured at fair value through profit or loss. The "other" business model comprises all debt instruments that are not allocated to the "hold" or "hold to collect and sell" business models. As a result, these debt instruments are allocated to the "measured at fair value through profit or loss" measurement category.

Equity instruments are allocated to the "measured at fair value through profit or loss" measurement category. The option of measuring equity instruments at fair value in equity without recycling is not currently being utilized.

To determine the fair value, the market price on the reporting date is taken for publicly listed financial assets. If no active market exists, the fair value is determined using the most recent market transaction or using a valuation method (such as the discounted cash flow method or the multiplier method). If the input parameters for such a valuation cannot be reliably determined with the amount of effort appropriate for the materiality of the equity instrument, the valuation is carried out at acquisition costs. Trade receivables usually have short terms to maturity. Consequently, their carrying amounts as of the reporting date approximate their fair value. Receivables that bear off-market interest or are interest free with remaining terms to maturity of more than one year are reported in the balance sheet at present value. For other current assets, it is assumed, as in the previous year, that the fair value approximates the carrying amount. For non-current other assets, the market value is determined by discounting the expected future cash flows. Financial assets are derecognized when the contractual claims to the cash flows expire or have been effectively transferred. In order to give proper consideration to the growing importance of climate risks, our fund managers use sustainability principles, including the UN Principles for Responsible Investment (UN PRI), when selecting each individual investment. Special climate risks are generally taken into account in the respective investment processes. At the same time, compliance with the regulations in the Sustainable Finance Disclosure Regulation (SFDR) when making investments will significantly increase transparency in the future.

Impairment of financial assets

The impairment model according to IFRS 9 incorporates forward-looking expectations and is based on expected credit losses. Financial assets that belong to the "measured at amortized cost" or "measured at fair value in equity" measurement categories are impaired using the 3 stage impairment model according to IFRS 9. For financial assets in the "measured at amortized cost" or "measured at fair value in equity" categories, a risk provision is determined at the time of acquisition in the amount of the expected loss within one year (12-month PD) **(risk provision stage 1).**

If there has been significant deterioration in the borrower's credit rating, the calculation horizon is extended to cover the lifetime of the receivable **(risk provision stage 2).**

The default risk has significantly increased/deteriorated resulting in a **transfer** to **risk provision stage 2** when the following criteria are met:

- A payment is more than 30 days past due, whereby an earlier transfer based on findings from the claims management process is also fundamentally possible.
- There has been a significant deterioration in the credit rating. As long as the absolute default risk is classified as low, the asset is generally not transferred to stage 2. It can be assumed in this process that a financial instrument has a "low default risk" if it fulfills the criteria to achieve an "investment grade" credit rating.

In order to evaluate whether there has been a significant change in the default risk, any actual or expected significant changes are also examined, taking into account, among other things, the following factors:

- external or internal credit rating of the financial instrument
- business/financial or economic framework conditions
- operating result of the borrower
- regulatory/economic or technological environment of the borrower
- financial support from a parent company
- payment history
- quality of the guarantees provided by a shareholder
- information on delayed payments

If the credit rating has deteriorated so much as to jeopardize payment or the borrower has actually defaulted, the asset is transferred to **risk provision stage 3.** The risk provision is also calculated here based on the expected losses over the lifetime of the receivable. In contrast to the previous stages, any interest income is now recognized on the basis of the net carrying amount after impairment and using the effective interest rate, and no longer on the basis of the gross carrying amount.

Default is assumed if the payment is 90 days or more past due or if the payment is no longer considered likely due to other events (such as opening insolvency proceedings).

The expected credit loss is determined by multiplying the credit risk parameters "Exposure at Default" (EaD), "Probability of Default" (PD) and "Loss Given Default" (LGD). The probability of default over a given time horizon is based on external ratings (if available). Due to the low number of defaults with respect to financial assets, the loss given default is calculated based on a weighted estimate by experts.

For trade receivables, receivables from investments and lease receivables with no significant financing component according to IFRS 15, the simplified approach for determining impairments according to IFRS 9 is used irrespective of their term. Accordingly, the expected loss over the whole lifetime is always used as the risk provision (risk provision stage 2).

When using the simplified approach, the expected loss is determined using default rates. Portfolios with the same risk characteristics are defined and then used to derive historical credit default rates. The following criteria are used to form the portfolios: the same type of contractual conditions for the assets, comparable counterparty characteristics and similar credit ratings for the assets in the portfolio. The expected loss rates are calculated based on historical defaults for each customer group. The historical loss rates are adjusted to reflect the current economic environment and forward-looking information on macroeconomic factors that could have an impact on the payment behavior of our customers. Gross domestic product has been identified as the most relevant factor in this area. In exceptional cases, the default probability is taken from default probabilities that are available externally instead of using historical data. If there is objective evidence that the credit rating for the asset has deteriorated, it is transferred to risk provision stage 3.

As in the previous year, receivables are generally written off when the receivable is deemed irrecoverable. Possible factors could be:

- an unsuccessful enforcement order
- filing for insolvency proceedings or opening the subsequent insolvency proceedings or refusal to open the insolvency proceedings due to a lack of assets
- a declaration about the ineligibility of the receivable in a court order

However, receivables may only be written off when there is no liability that could be offset against it. Impairment loss expenses are netted as a separate item on the income statement.

Inventories

Inventories are recorded at cost. As a rule, they are measured at average prices. Pursuant to IAS 2, costs of conversion contain the direct costs and an appropriate portion of the necessary materials and production overheads including depreciation. Costs of conversion are determined on the basis of normal capacity utilization. Borrowing costs are not capitalized as a component of costs of conversion. Appropriate allowance is made for risks relating to reduced usability. Where necessary, the lower net realizable value compared to the carrying amount is recognized. Reversals of impairment losses on inventories are deducted from the cost of materials.

Inventories acquired for trading purposes are recognized at fair value less costs to sell. Basis adjustments are carried out on inventories purchased in connection with cash flow hedges in the form of an increase or decrease in acquisition costs. Amounts are reclassified to the income statement when the hedged item impacts profit or loss.

Emission allowances

Emission allowances acquired for production purposes are recognized at cost as inventories. In contrast, emission allowances acquired for trading purposes are recognized as other assets at fair value through profit or loss.

The obligation to return emission allowances is accounted for under other provisions. The carrying amount of the provision is determined based on the carrying amount of the existing emission allowances. If further emission allowances are needed, they are accounted for at their fair value as of the reporting date.

Treasury shares

Own equity instruments which are repurchased (treasury shares) are deducted from equity. No gain or loss is recognized in the income statement on the purchase, sale, issue or cancellation of the Group's own equity instruments.

Non-controlling interests

Non-controlling interests comprise the positions within net assets attributable to minority shareholders and the gains or losses and other components of the overall result attributable to these shareholders.

The value of non-controlling interests is calculated pro rata based on the identifiable net assets. Non-controlling interests are presented separately from the equity of the shareholders of the parent company within Group equity.

Provisions for pensions and similar obligations

For defined benefit plans, provisions for pensions and similar obligations are determined using the projected unit credit method in accordance with IAS 19. This method considers current and future pension benefits known at the reporting date as well as future anticipated salary and pension increases. Actuarial gains and losses are recorded in their entirety in the financial year in which they arise. They are reported outside of the income statement in the statement of comprehensive income as part of the cumulative changes not impacting income and recorded in equity. There will be no recognition in profit and loss in subsequent periods. Plan assets of funds established to cover the pension obligations are deducted from the provision. The service cost is disclosed in personnel expenses, while the net interest portion of additions to the provision and the return on plan assets are recorded in the financial result. Payments for defined contribution plans are recognized as personnel expenses.

Provisions relating to nuclear power

The Act for the Reorganization of Responsibility in Nuclear Waste Management, which came into force in the middle of June 2017, establishes new rules for the roles and financial responsibilities of the German government and operators. According to the new law, operators are responsible for the decommissioning and dismantling of their nuclear power plants, as well as for the conditioning and proper packaging of the radioactive waste. The provisions accumulated for these purposes will remain with the companies. The transport, intermediate storage and final storage of the waste is the responsibility of the German government, who has been provided with the money to finance these tasks by the operators of the nuclear power plants. The evaluation of the provisions is carried out mainly on the basis of estimates, which for the decommissioning and dismantling of nuclear power plants, as well as for the conditioning and packaging of radioactive waste, are primarily derived from sector-specific appraisals. The provisions are recognized at the discounted settlement amount at the time they originated.

Other provisions

Other provisions take account of all legal or constructive obligations towards third parties resulting from past events that are identifiable at the reporting date, to the extent that it is probable that they will lead to an outflow of resources in future and their amount can be reliably estimated. The provisions are recognized at their settlement amount. They are measured at the estimated future amount or the amount most likely to be incurred.

The non-current provisions are stated at the future amount needed to settle the obligation discounted to the reporting date. This does not apply to provisions for pensions and similar obligations. These are subject to special rules in accordance with IAS 19.

When measuring the value of provisions related to the windfall profit levy, the option of applying the forward market correction according to section 17 StromPBG was utilized.

Deferred taxes

Deferred taxes are recorded in accordance with the temporary concept (IAS 12) on all temporary differences between the tax accounts and the IFRS balance sheet of the individual entities. The Group only applies the exception to the recognition and disclosure of deferred taxes if they result from the application of the Pillar Two model rules for a global minimum tax rate. Deferred taxes from consolidation entries are recognized separately. Deferred tax assets are recognized on deductible temporary differences and carryforwards of unused tax losses if it is reasonably certain that they will be recovered.

Deferred taxes are calculated on the basis of the tax rates that apply or that are expected to apply in the individual countries at the time of utilization. A tax rate of 29.7% was applied for German Group companies (previous year: 29.7%). Tax assets and tax liabilities are netted with each other by consolidated tax group or entity if the conditions to do so have been satisfied.

Financial liabilities

Financial liabilities are recorded at fair value upon initial recognition. After initial recognition, they are measured at amortized cost. Lease liabilities are recognized under other liabilities at the present value of the outstanding lease payments.

The fair value of bonds listed on the capital market is the nominal value multiplied by the quoted price as of the reporting date. For current financial liabilities, it is assumed that the fair value corresponds to the carrying amount. For non-current financial liabilities, the market value is determined by discounting the expected future cash outflows. If these financial liabilities are subject to floating interest rates, the carrying amount corresponds to the fair value. Financial liabilities are derecognized when the contractual obligations have been fulfilled or extinguished.

Trade payables and other liabilities

Trade payables and other liabilities are recognized at the amount repayable. Trade payables primarily have short terms to maturity. Consequently, their carrying amounts as of the reporting date approximate their fair value. For current other liabilities, it is assumed that the fair value corresponds to the carrying amount. For non-current other liabilities, the market value is determined by discounting the expected future cash outflows. The construction cost subsidies and household connection costs carried as liabilities are reversed to revenue in some cases based on the use of the subsidized item of property, plant and equipment, and in other cases according to the electricity and gas grid fee ordinance. As a rule, the period of reversal for construction cost subsidies is between 20 and 45 years. Investment cost subsidies are reversed over the depreciation period of the subsidized assets through profit or loss in other operating income.

Other liabilities includes lease liabilities that are recognized at the present value of the outstanding lease payments.

Assets held for sale and liabilities directly associated with assets classified as held for sale

Assets held for sale are individual non-current assets and groups of assets that can be sold in their present condition, whose sale is highly probable and that satisfy all the criteria defined in IFRS 5. The item "liabilities directly associated with assets classified as held for sale" includes liabilities that are part of a group of assets held for sale.

Assets classified as assets held for sale are measured at the lower of carrying amount and fair value less costs to sell, and depreciation on such assets ceases.

Gains or losses from measuring individual assets and groups of assets held for sale are disclosed as profit or loss from continuing operations until they are finally sold.

Derivatives

Derivatives are measured at fair value in accordance with IFRS 9. Both the counterparty's credit default risk and that of the company itself are taken into account in the calculation of fair value. Default risk with respect to an individual counterparty is calculated on the basis of the net risk position. In the case of derivatives for which net recording is not permitted, the credit default risk calculated on the basis of the net position is recorded in proportion to the fair value before the value adjustment. In accordance with the "net approach," this involves allocating the value adjustment solely to the derivatives' asset or liability surplus that arises. The derivatives are recognized under other assets and other liabilities and subsidies.

Derivatives are measured using quoted prices in active markets such as stock market prices. Where such prices are not available, the fair values are determined by reference to generally accepted valuation techniques. Quoted prices in active markets are used as inputs wherever possible. If they are not available either, entity-specific planning assumptions are considered in the valuation.

If they are contracts that were entered into and continue to be held for the purpose of the receipt or delivery of a non-financial item, in accordance with the entity's expected purchase, sale or usage requirements (own use), they are not recognized as derivatives under IFRS 9, but as executory contracts in accordance with IAS 37.

Derivatives are allocated to the "measured at fair value through profit or loss" measurement category unless hedge accounting is used.

For derivatives used in a hedge, the accounting treatment of changes in fair value depends on the nature of the hedging transaction.

In the case of changes in the fair value of cash flow hedges which are used to offset future cash flow risks arising from existing hedged items or highly probable forecast transactions, the unrealized gains and losses are initially recognized directly in equity (other comprehensive income) in the amount of the hedged item covered. Amounts are derecognized from equity either when the hedged item impacts profit or loss on the income statement or in the case of hedged inventories by an adjustment to the cost of acquisition of the hedged inventory (basis adjustment).

In the case of a fair value hedge used to hedge the fair value of reported assets or liabilities, the gains or losses from the measurement of derivatives and the associated hedged items are recognized in profit or loss.

Foreign currency risks from investments with a foreign functional currency are secured by hedges of a net investment in a foreign operation. Unrealized exchange rate differences are initially recognized in equity and reclassified to profit or loss when the foreign operation is sold.

Hedging relationships are designated in accordance with the risk management goals and strategies explained in note (26) "Accounting for financial instruments." The economic relationship between the hedging instrument and the hedged items, as well as the evaluation of the expected effectiveness of the hedge, are documented at the beginning. Primary and derivative financial instruments will be netted in the balance sheet if an unconditional right to offset exists, or when there is an intention to offset or realize the asset and settle the liability.

Power purchase agreements (PPAs) and power sale agreements (PSAs)

The accounting method used for long-term power purchase agreements and power sale agreements, which include the physical delivery of energy, depends on the design of the respective agreement. The first step is to check whether EnBW has no control (IFRS 10) or joint control (IFRS 11) over the company or the asset. The next step is to check whether the contract is considered a lease (IFRS 16). This is the case if the consumer enjoys the entire economic benefits of its use and can decide on the use of the asset. Otherwise, a PPA or PSA can be accounted for as a financial instrument according to IFRS 9. If IFRS 9 cannot be applied due to the own use exception, the contract is considered an executory contract for which a provision for anticipated losses only needs to be recognized if the contractual obligation is classified as an onerous contract (IAS 37).

For further information, please refer to the section "Leases."

There is no physical delivery of electricity in the case of virtual contracts. They are considered to be financial agreements, which generally meet the definition of a derivative according to IFRS 9.

Contingent liabilities

Contingent liabilities are possible obligations to third parties or present obligations where the probability of an outflow of resources is remote or the amount cannot be determined reliably. Contingent liabilities outside of company acquisitions are not recognized.

Financial guarantees

Financial guarantees are contracts where EnBW is required to make specified payments to reimburse the holder for a loss incurred because a debtor fails to meet its payment obligations under the financial guarantee. Financial guarantees are accounted for according to IFRS 9 and not IFRS 17. They are measured at fair value upon initial recognition. After initial recognition, the financial guarantees are measured at the higher of amortized cost and the best estimate of the present obligation as of the reporting date.

Revenue recognition

Please refer to note (1) "Revenue" for more details on the accounting policies.

According to IFRS 15, revenue is recognized when control over a good or service has been transferred to the customer. Service contracts for a fixed fee, whose primary purpose is the provision of a service and not the transfer of an insurance risk, are recognized in the EnBW Group in accordance with IFRS 15 and not IFRS 17. Revenue is measured according to the consideration defined in the contract with the customer, whereby sales deductions such as price discounts or variable components must be taken into account. Amounts collected on behalf of third parties are excluded from this process. Revenue is recognized net of VAT and after the elimination of intercompany sales. Costs for obtaining contracts are immediately recognized as an expense when they arise, insofar as the amortization period for the assets is one year or less. If the amortization period is longer, they are capitalized. The amortization template works in line with the transfer of the good or service to the customers and is based on the average customer-retention period. An adjustment to the transaction price to take account of a significant financing component is not required because no contracts have currently been concluded where the time period between the transfer of the promised good or service to the customer and the payment by the customer exceeds one year, or such contracts fall under the exception in IFRS 15.62.

Exercise of judgment and estimates when applying accounting policies

Please refer to note (21) "Provisions" for more information on **provisions.**

The preparation of the consolidated financial statements requires judgments and estimates to be made in applying the accounting policies that affect the reported amounts of assets and liabilities, revenue and expenses, and the disclosure of contingent liabilities.

EnBW regularly reviews its expectations with respect to medium- and long-term price trends in the relevant procurement and sales markets and its estimates with respect to energy industry conditions. In particular, this review takes into account the clearly defined and accelerated climate protection efforts of the German government, with the implementation of the EU Green Deal through effective regulations and the impact of geopolitical conflicts.

In the 2022 financial year, the expected prices for gas, coal, CO_2 allowances and electricity increased, particularly in response to the changes on the gas markets due to the war between Russia and Ukraine. In the 2023 financial year, the expected prices for electricity, gas and coal fell and the expected price for CO_2 allowances increased following a review of the medium-term price expectations in comparison to the previous year. In contrast to our expectations in the previous year, we are predicting a slight increase in the prices for electricity, gas and coal in the long term. It is possible that climate protection policies could further reduce the service lives of conventional power plants. This would have an impact on the valuation of the power plants and the impending losses from long-term electricity procurement agreements. For further information on the impact of climate change, please refer to the section "Disclosures on climate change."

Judgment must be exercised, in particular, in the process of applying the accounting policies:

- Whether certain commodity futures contracts should be accounted for as derivatives as defined by IFRS 9 or as executory contracts in accordance with the provisions of IAS 37.

We refer you to the explanations of "Power purchase agreements (PPAs) and power sale agreements (PSAs)" in the section "Significant accounting policies" for more information.

- The accounting methods used for long-term power purchase agreements (PPAs) and power sale agreements (PSAs) are determined based on the design of the agreement.
- For contracts for the purchase or sale of LNG, it is necessary to assess whether they fulfill the criteria for a financial instrument according to IFRS 9. Based on the development of the global LNG market, it must be determined whether a sufficiently liquid market exists for the fulfillment of LNG contracts on a net basis. Even in view of the latest developments on the LNG market, we still believe in line with our previous assessments that there is no active market. Therefore, the contracts do not fall under the scope of IFRS 9 and are instead recognized in the respective reporting period.
- Financial assets must be allocated to the "measured at amortized cost," "measured at fair value through profit or loss" or "measured at fair value in equity" measurement categories according to IFRS 9.

We refer you to the explanations of "Financial guarantees" in the section "Significant accounting policies" for more information.

- In the case of contracts with customers, individually definable goods or services must be identified and assessed to determine whether the relevant performance obligation is delivered on a particular date or over a period of time. An appropriate measure of progress must also be determined in order to recognize revenue over the respective period of time. As the customer generally benefits from the service evenly over time, revenue is recognized on a straight-line basis. When determining the transaction price for the transfer of goods and services, it is especially important to identify any variable considerations (such as discounts) and evaluate the extent to which they should be included in the transaction price. Judgment is also required for measuring the level of any variable considerations. These estimates are based, in particular, on the contractual conditions and past empirical values.

We refer you to the explanations of "Emission allowances" in the section "Significant accounting policies" for more information.

- In the case of emission allowances, the company must decide whether they are being used to compensate for production-related emissions or for trading purposes.

Please refer to the full list of shareholdings in note (38) "Additional disclosures" for more information on the **consolidated companies.**

- An evaluation must be carried out when including companies in the consolidated companies for the EnBW Group, to decide whether EnBW has control, joint control or exercises a significant influence over the respective company. Alongside the voting rights, contractual rules and the actual circumstances are also taken into account.

These estimates are based on assumptions and forecasts which, by their very nature, are uncertain and may be subject to change. The key future-oriented assumptions and other sources of uncertainty as of the reporting date, concerning estimates which have given rise to a considerable risk that material adjustments of carrying amounts of assets and liabilities may be required in the next financial year, are explained below:

Goodwill: A review is carried out on every reporting date to identify whether there are any indications of impairment and goodwill is tested for impairment at least once a year. The impairment test involves estimates that concern, above all, future payment surpluses. The underlying assumptions are described in the section "Significant accounting policies" under "Impairment losses/reversals of impairment losses." To determine the recoverable amount, an appropriate discount rate must be chosen. Future changes in the macroeconomic, industry or company situation may reduce payment surpluses or increase the discount rate, and thus potentially lead to an impairment of goodwill.

Property, plant and equipment: Property, plant and equipment are tested for impairment when circumstances or events indicate that there could be an impairment or increase in value. For our power plants in particular, in addition to technical progress and damage, a change in expectations regarding short, medium- and long-term electricity prices and the service life of the power plants may lead to impairment losses or their reversal. The underlying assumptions are described in the section "Significant accounting policies" under "Impairment losses/reversals of impairment losses." A suitable interest rate must be used when performing the impairment tests. If this interest rate changes, for example due to a change in the macroeconomic or industry situation, recognition of impairment losses or reversals of impairment losses may also be necessary.

Impairment of financial assets: In order to determine impairments on financial assets, assumptions about the default risk are made that influence the loss rates. The assumptions are made based on the historical experiences of the Group and flow into the calculation of the impairments as input factors. Changes to market conditions and forward-looking estimates before the end of the relevant reporting period are also taken into account in the calculations. The most important assumptions and input factors are described in the section "Significant accounting policies."

Determining the fair value of financial assets and financial liabilities: The fair value of financial assets and financial liabilities is determined by reference to quoted market prices, insofar as the financial instruments are traded on an active market, or by using valuation techniques such as the discounted cash flow method. Where the parameters used in the valuation techniques are not supported by observable market data, assumptions need to be made which can affect the fair value of financial assets and financial liabilities.

Contracts for the purchase and sale of LNG: It is necessary to assess whether contracts for the purchase and sale of LNG fulfill the criteria for a financial instrument according to IFRS 9. Based on the development of the global LNG market, it must be determined whether a sufficiently liquid market exists for the fulfillment of LNG contracts on a net basis. We still believe that there is no active market. Therefore, the contracts do not fall under the scope of IFRS 9 and are instead recognized in the respective reporting period.

Pension provisions: When calculating pension provisions, compared to the actual obligations incurred over time, differences may arise from the selection of underlying assumptions, such as the discount rate or trends, the use of biometric probabilities based on the 2018 G Heubeck mortality tables and the accepted approximation methods for future pension increases from the statutory pension insurance fund.

Nuclear provisions: The provisions for the decommissioning and dismantling of the power plants, as well as for the conditioning and packaging of radioactive waste, are based mainly on sector-specific external appraisals that are updated annually. These appraisals are based on cost estimates of the settlement value for each obligation. The uncertainty inherent in the estimates is due primarily to departures from the assumed cost development and changes in payment dates. Changes in the discount rate could also lead to an adjustment of the nuclear provisions.

The underlying assumptions for determining the expected market price are described in the explanations under "Impairment losses/reversals of impairment losses" in the section "Significant accounting policies."

Provisions for onerous contracts: Provisions for onerous contracts are generally set up for onerous procurement and sales agreements. A change in the expected market prices on the procurement or sales side or in the discount rates may lead to an adjustment of the provisions for onerous contracts.

Warranty provisions: Provisions for statutory warranty obligations associated with products sold or services rendered are estimated on the basis of historical warranty data at the time of the sale. These provisions are regularly adjusted to take new information into account.

Acquisition accounting: For acquisition accounting purposes, all identifiable assets, liabilities and contingent liabilities acquired in a share purchase are recognized at fair value as of the date of acquisition for first-time consolidation purposes. Estimates are used to calculate the fair value of these assets and liabilities as of the date of acquisition. Land and buildings as well as other equipment, factory and office equipment are generally measured by independent appraisers. Marketable securities are recognized at market price. If the purchase price agreement includes contingent considerations, accounting for those purchase price components also requires estimates.

The measurement of intangible assets is based on the nature of the intangible asset as well as the complexity of determining fair value. Fair value is therefore determined on the basis of an independent external valuation appraisal.

Income tax: Estimates are also needed to capitalize tax refund claims, to set up tax liabilities and to assess the temporary differences arising from differences in the accounting treatment of certain items in the financial statements between the consolidated balance sheet in accordance with IFRS and the tax accounts. These estimates also take into account uncertainties with respect to the way income tax is handled by the respective tax authority. Capitalization of tax assets and the setting up of tax liabilities are fundamentally only recognized if the relevant payments are likely. Deferred tax assets or liabilities are recognized on temporary differences. Deferred tax assets are, in principle, only recognized when the future tax advantages will probably be realized or where deferred tax liabilities exist. Deferred tax assets are recognized for all carryforwards of unused tax losses to the extent that it is probable that taxable profit will be available against which the loss carryforwards can be utilized. The judgment exercised by management regarding the anticipated timing and level of future taxable profits, as well as regarding future tax planning strategies, is significant in determining the amount of deferred tax assets that can be recognized. If considered material, changes to climate-relevant matters are also taken into account when determining future taxable profit.

Entities accounted for using the equity method: IFRS financial statements were not available to us for all entities. Therefore, these entities were accounted for using the equity method based on an estimate of the HGB-IFRS differences. Investments that are accounted for using the equity method in the consolidated financial statements are tested for impairment when circumstances or events indicate that there could be an impairment loss or increase in value. The impairment test involves estimates that concern, above all, future payment surpluses. To determine the recoverable amount, an appropriate discount rate must be chosen. Future changes in the macroeconomic, industry or company situation may reduce payment surpluses or increase the discount rate, and thus potentially lead to an impairment of the investments.

Potential effects due to changes in estimates are explained in the context of the relevant topics in the respective sections.

Impact of the war between Russia and Ukraine

The war between Russia and Ukraine is continuing to cause uncertainty on the energy market. It has resulted in, among other things, fluctuations in prices in the gas and electricity sector on the reporting dates and fluctuations in procurement costs. In addition, it is continuing to cause interruptions to the supply chains and rising inflation rates.

Due to the looming threat of a gas shortage, our coal-fired power plants were deployed more frequently in the second half of 2022 to ensure the security of supply. The supply situation in the gas sector had already improved by the end of 2022. This situation continued throughout the whole of 2023 and meant that the gas storage facilities were more than 40% full on average in April and exceeded the statutory requirements on the reporting dates in the second half of the year. Prices on the wholesale market fell as a result throughout the year. As a consequence, the thermal power plants were deployed less than planned in 2023. Our forward-looking hedging policies improved profitability and led to a significant increase in earnings in this segment.

As a result of the war between Russia and Ukraine and the associated shifts on the market, it was necessary for bmp greengas GmbH (bmp) to submit an application in accordance with section 270 a InsO on 25 May 2023 for the opening of protective shield proceedings. The company initiated the insolvency proceedings under self-administration on 1 August 2023. As a result of this loss of control, it was necessary to deconsolidate bmp and also impair the receivables from this company. The described effects of €245 million had a particular impact on the item “Impairment losses” and “Other operating expenses.” The insolvency plan was approved by the Insolvency Court in Karlsruhe on 28 December 2023. It has been legally binding since 12 January 2024. The insolvency plan included a payment of €120 million into the capital reserve at bmp and this was completed on 31 January 2024. Following the termination of the insolvency proceedings, the company will be included in the consolidated financial statements again.

Despite the volatile market conditions, we remain committed to our strategic alignment.

Disclosures on climate change

EnBW is transforming itself from an energy supply company into a sustainable and innovative infrastructure partner. Sustainability is an important element of our business model and also a feature of our strategic alignment. As an energy company, EnBW can make a particularly effective contribution to climate protection.

Further information can be found in the management report under “Our climate protection goals.”

The Group is planning to gradually phase out coal power by 2028 and become climate neutral with respect to its own emissions (Scope 1 and 2) by the end of 2035 at the latest. EnBW already announced the development of science-based climate protection targets as part of the Science Based Targets initiative (SBTi) in October 2021. We concluded this process in early 2023 and the targets were certified by the SBTi. We have thus aligned our climate protection targets with the targets of the Paris Agreement. The reduction targets follow a 1.5 degree-aligned path for Scope 1 and 2 emissions and a “well below 2 degrees”-aligned path for Scope 3 emissions. The aim is to reduce CO_2 emissions in the Group in Scopes 1 and 2 by 83% by 2035 (based on the reference year of 2018). In the same period, the EnBW Group aims to reduce its emissions from gas sales, which account for the majority of its Scope 3 emissions, by 43% in comparison to the reference year 2018. The Group intends to offset any residual Scope 1 and 2 emissions in the period after 2035 on a transitional basis by purchasing CO_2 certificates and thus supporting recognized climate change mitigation projects until the emissions have been completely reduced to zero. Along this path, we have also defined various intermediate targets and milestones: We will reduce our Scope 1 and 2 emissions by 50% by 2027 and by 70% by 2030 (based on the reference year of 2018).

In view of the growing importance of climate-related risks, EnBW's strategic considerations take into account the requirements of the energy transition and the profound changes that will take place due to the transformation towards climate neutrality with the effects they will have on all business sectors and private households. We place particular focus on the expansion of renewable energies, electricity consumption, the expansion of the grids, grid stability and the security of supply.

The main focus of this investment is the expansion of the grids, especially the central SuedLink and ULTRANET projects of our grid subsidiary TransnetBW for the future energy supply in Germany, the expansion of renewable energies, such as the planned realization of the EnBW He Dreiht offshore wind farm and the construction of H2-ready gas power plants in Altbach/Deizisau, Stuttgart-Münster and Heilbronn, and further developments in the Smart Infrastructure for Customers segment, for example, in the context of a futher expansion of broadband, telecommunications and electromobility. We apply sustainability criteria when making investment decisions even more resolutely than before and are aligning our growth accordingly. In this context, we examine the requirements with respect to climate protection, possible implementation paths and the implications for the business model in particular. This creates an important basis for assessing the opportunities and risks for our business that will arise due to climate change and the dynamic regulatory environment associated with it.

In order to evaluate these opportunities and risks, we use real developments to derive four realistic future scenarios that take into account all of the different aspects of the energy transition. These scenarios are primarily characterized by two dimensions: climate protection and the sustainable economic growth that is achievable in the long term. In this context, climate protection means the transformation towards a climate-neutral company. The economic growth that can be sustainably achieved is a key variable influencing, e.g., the demand for electricity or commodity prices. The scenarios that are relevant to EnBW differ according to the rate of transformation towards a climate-neutral company. Scenarios 1 and 2 assume "normal" economic growth within the scope of so-called potential growth. In scenario 1, there will be a slight delay in achieving the goal of climate neutrality because it will not be possible to comprehensively solve the practical challenges associated with the implementation of the energy transition. In scenario 2, the climate targets defined in the EU Green Deal will be largely achieved up to the middle of the century. In scenarios 3 and 4, it is assumed that there will be a long-term, permanent deviation in economic development that lies outside the scope of potential growth. In scenario 3, it is assumed that there will be higher growth because climate protection has been given a lower priority. In scenario 4, weaker economic growth is assumed. In this scenario, the transformation to climate neutrality will be achieved at the slowest pace.

Based on the assumptions made for specific variables, possible paths for how the energy markets (especially electricity and gas) will develop in the long term are derived for the four scenarios. In the process, we predict the wholesale market prices for electricity in simulated calculations using computer models. These simulations also take into account physical risks, such as the influence meteorological fluctuations may have on the electricity market due to the availability of wind and sunlight, and thus make it possible to incorporate potential changes to the physical environment due to climate change into the calculations. The scenarios can thus provide us with quantitative descriptions that serve as the basis for assessing the business of EnBW and, in particular, also allow us to evaluate the opportunities and risks associated with climate change.

The EnBW consolidated financial statements as of 31 December 2023 were prepared taking into consideration the opportunities and risks related to climate change and to the goals for our strategy, sustainability and climate protection, including climate neutrality. Physical risks resulting from extreme weather events, such as floods, periods of extreme heat and drought, forest fires, hail, storms, etc., could have an impact on the balance sheet in the form of, for example, disruptions to production or production losses, the impairment of assets or additional expenses for reconstruction or purchase of replacements, and are reported based on their materiality. However, they could also lead to long-term changes in climatic and ecological conditions that would indirectly impact the balance sheet via valuation assumptions (e.g., temperature trends, hours of sunshine or wind levels). Transitory risks during the transition to a climate-neutral economy primarily arise in connection with potential political, taxation and regulatory measures, as well as social expectations (e.g., changes in customer demand for renewable instead of conventional energy). Material and foreseeable effects with an impact on assets, liabilities, income and expenses, as well as any contingent liabilities, were taken into account in the financial statements.

The underlying parameters for material evaluations and estimates made in the reporting year are based fundamentally on the detailed planning period for the Group and, in the long term, on a weighting of the four scenarios described above. These assumptions are consistent with the assumptions for assessing the robustness of the business model and the assumptions made in the risk management system.

Climate-related effects have an impact on the Group's net assets, financial position and results of operations particularly in the following areas:

Area	Notes	Contents
Uncertainty inherent in estimates	Section "Exercise of judgment and estimates when applying accounting policies"	• Assumptions on the useful lives of non-financial assets, e.g., a residual useful life until 2028 is assumed for the coal power plants due to the early phaseout of coal • Valuation assumptions for impairment tests, especially for cash flow forecasts • Assumptions related to future taxable results with an impact on the recognition and valuation of deferred taxes
Revenue	(1) Revenue	• In the case of customer groups who pay according to rolling annual statements, the transaction prices for electricity and gas deliveries is calculated based on past consumption values while taking into account the current temperature influences and time of year • The revenues from long-term power purchase agreements for wind and solar energy are dependent on the hours of sunshine and wind levels
Leases	(12) Leases	• In the case of agreements for variable lease payments, which mainly relate to long-term power procurement agreements with variable volumes of electricity from wind and solar energy, the size of the lease payments is dependent on the hours of sunshine and amount of wind
Provisions, contingent liabilities and other financial commitments	(21) Provisions (27) Contingent liabilities and other financial commitments	• Provisions are formed for the obligation to return emission allowances in the European emissions trading system. • The German nuclear power plant operators have cover from risks due to nuclear damage that could occur as a result of physical risks (e.g., earthquakes, floods, persistently high temperatures).
Sustainable financing	(23) Liabilities and subsidies	• In accordance with our Green Financing Framework, the proceeds from the green bonds are exclusively used in the areas of renewable energies (offshore wind, onshore wind and photovoltaics), clean transport (charging infrastructure for electromobility) and the electricity grids. • The proceeds from the green promissory note of our subsidiary VNG can only be used for environmentally sustainable projects. The focus here in the medium to long term will be green gases, primarily biogas and sustainably produced hydrogen. • Two bank loans taken out specifically to finance the EnBW He Dreiht offshore wind farm. • The financing conditions for the sustainability-linked syndicated credit line are linked to CO_2 intensity and the share of generation capacity accounted for by renewable energies.
Remuneration of the Board of Management	(37) Related parties (individuals)	• Since performance period 2022–2024, the level of the long-term multi-year variable remuneration (LTI) has not only been dependent on the financial performance indicator EBT but also on compliance with sustainability criteria defined annually by the Supervisory Board; please refer to the detailed presentation on this aspect in the remuneration report of EnBW AG published according to stock corporation law.

Currency translation

In the separate financial statements of the entities, business transactions in foreign currency are translated at the rate of the transaction date. Non-monetary items are measured at the rate prevailing when they were first recorded. Monetary items are translated at the closing rate as of the reporting date. Translation differences from monetary items that are allocable to operating activities are recognized in other operating income or other operating expenses with effect on profit or loss. Translation differences from financing activities are disclosed in the financial result.

The reporting currency of EnBW, which is also the functional currency, is the euro (€). The financial statements of the Group entities are translated to euros. Currency translation is performed in accordance with IAS 21 "The Effects of Changes in Foreign Exchange Rates" using the modified closing rate method. Under this method, the assets and liabilities of entities that do not report in euros are translated at the mean rate prevailing on the reporting date, while expenses and income are translated at the average annual rate. The companies concerned are commercially independent foreign entities. Differences from the currency translation of assets and liabilities compared to the translation of the previous year, as well as translation differences between the income statement and the balance sheet, are recognized directly in equity under other comprehensive income. The same procedure is applied by analogy for foreign entities accounted for using the equity method.

Currency translation was based on the following exchange rates, among others:

€1	Closing rate		Average rate	
	31/12/2023	31/12/2022	**2023**	2022
Swiss franc	**0.93**	0.98	**0.97**	1.01
Pound sterling	**0.87**	0.89	**0.87**	0.85
US dollar	**1.11**	1.07	**1.08**	1.05
Czech koruna	**24.72**	24.12	**24.00**	24.56
Japanese yen	**156.33**	140.66	**151.91**	138.00
Danish krone	**7.45**	7.44	**7.45**	7.44
Polish zloty	**4.34**	4.68	**4.54**	4.68
Swedish krona	**11.10**	11.12	**11.47**	10.63

Notes to the income statement and the balance sheet

(1) Revenue

Revenue from contracts with customers is recognized when control over a good or service has been transferred to the customer. The electricity and energy tax paid by the entities is deducted from revenue in the income statement. In the interest of a more accurate presentation of the business development, income and expenses from energy trading businesses are disclosed net. The net disclosure means that revenue from energy trading businesses is reported net of the related cost of materials. For the 2023 financial year, the reduced energy trading revenue was €64,833.3 million (previous year: €273,779.5 million).

Following an amendment to the Energy Industry Act (section 24b) in response to the extraordinary development of prices on the energy and raw materials markets and for the purpose of reducing the burden on end consumers, the German transmission system operators are now able to receive subsidies to finance some of their transmission grid costs in 2023. In this context, Transnet BW received around €573 million in the 2023 financial year that was recognized as revenue through profit or loss.

Alongside revenue from contracts with customers, there is other revenue from ordinary business activities. This is how it breaks down:

in € million	2023	2022
Revenue from contracts with customers	43,988.0	55,657.0
Other revenue	442.7	345.6
Total	**44,430.7**	**56,002.6**

The change in revenue is explained in more detail in the management report in the section "The EnBW Group" and mainly relates to revenue from contracts with customers.

The following table shows a breakdown of revenue by region and products for the different segments of the EnBW Group.

External revenue by region

2023 in € million	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Revenue from contracts with customers by region	17,249.2	5,889.1	20,828.6	21.2	43,988.1
Germany	(13,464.0)	(5,752.4)	(12,365.0)	(13.4)	(31,594.8)
European currency zone excluding Germany	(627.7)	(6.8)	(7,803.0)	(0.0)	(8,437.5)
Rest of Europe	(3,148.5)	(129.9)	(628.5)	(7.8)	(3,914.7)
Rest of world	(9.0)	(0.0)	(32.1)	(0.0)	(41.1)
Other revenue	0.0	438.8	3.8	0.0	442.6
Total	**17,249.2**	**6,327.9**	**20,832.4**	**21.2**	**44,430.7**

External revenue by region

2022 in € million[1]	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Revenue from contracts with customers by region	18,754.5	6,353.9	30,541.0	7.5	55,656.9
Germany	(15,009.2)	(6,171.2)	(19,410.9)	(7.5)	(40,598.8)
European currency zone excluding Germany	(638.3)	(3.6)	(10,691.6)	(0.0)	(11,333.5)
Rest of Europe	(3,100.9)	(179.1)	(437.8)	(0.0)	(3,717.8)
Rest of world	(6.1)	(0.0)	(0.7)	(0.0)	(6.8)
Other revenue	0.0	343.5	2.2	0.0	345.7
Total	**18,754.5**	**6,697.4**	**30,543.2**	**7.5**	**56,002.6**

1 The figures for the previous year have been restated.

External revenue by product

2023 in € million	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Revenue from contracts with customers by product	17,249.2	5,889.1	20,828.6	21.2	43,988.1
Electricity	(8,484.0)	(4,110.9)	(6,666.5)	(1.2)	(19,262.6)
Gas	(7,481.0)	(917.3)	(13,497.1)	(0.0)	(21,895.4)
Energy and environmental services/ other	(1,284.2)	(860.9)	(665.0)	(20.0)	(2,830.1)
Other revenue	0.0	438.8	3.8	0.0	442.6
Total	**17,249.2**	**6,327.9**	**20,832.4**	**21.2**	**44,430.7**

External revenue by product

2022 in € million[1]	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Revenue from contracts with customers by product	18,754.5	6,353.8	30,541.0	7.5	55,656.8
Electricity	(6,833.5)	(4,661.3)	(11,221.0)	(0.0)	(22,715.8)
Gas	(10,730.8)	(744.6)	(18,629.0)	(0.0)	(30,104.4)
Energy and environmental services/ other	(1,190.2)	(947.9)	(691.0)	(7.5)	(2,836.6)
Other revenue	0.0	343.6	2.2	0.0	345.8
Total	**18,754.5**	**6,697.4**	**30,543.2**	**7.5**	**56,002.6**

1 The figures for the previous year have been restated.

One of the Polish subsidiaries was restructured at the beginning of 2023 in order to comply with the Polish energy industry regulations. The grid business at this company was previously reported in the “Smart Infrastructure for Customers” segment but will be part of the “System Critical Infrastructure” segment from the 2023 financial year onwards. The figures for the previous year have been restated accordingly.

Revenues mainly arise from goods supplied or services rendered over a particular time period.

The most important services are described below:

Electricity and gas deliveries: The revenues primarily result from the transfer of electricity and gas to customers. Customers could be trading partners, redistributors or end customers. Sales made via the trading markets are realized when control is transferred to the purchaser. Many contracts with end customers do not specify a fixed purchase volume. In these cases, the performance obligation consists of, in particular, providing an energy supply that can be accessed at all times so that the revenue is recognized for the respective time period over the term of the contract. The progress made in the performance of the contract is usually measured after this period of time. The transaction price for the underlying contracts comprises a fixed basic fee and the charge for the volume of electricity or gas consumed. If fixed purchase volumes are agreed, however, the performance obligation consists of transferring the energy volumes, which is why the revenue is recognized when control is transferred. In the case of customer groups who pay according to rolling annual statements, the transaction price is calculated based on past consumption values while taking into account the current temperature influences and time of year. Discounts or bonus payments are taken into account as variable considerations against revenue from the beginning of the contract. If individual contracts include the transfer of assets as an additional performance obligation, the revenue for these assets is recognized at the time of delivery and measured at the relative individual sales price. Monthly advance payments are generally agreed.

Distribution of electricity and gas: EnBW offers its customers use of the electricity and gas grids. EnBW recognizes the revenues when the services are rendered. Monthly invoices of the actual costs or monthly advance payments are agreed.

In addition, other revenue from contracts with customers includes the areas of services, district heating, contracting, the supply of water, waste management and telecommunications. The majority of the contracts include services for which customers pay while they are being rendered and the revenue is thus recognized over a period of time. The measure of progress is generally carried out on a straight-line basis together with the allocation of variable fees for certain performance elements.

The total amount of the expected revenues for performance obligations that have not been fulfilled, either partially or fully, as of 31 December 2023 is €32,101.2 million (previous year: €38,322.0 million). Most of these performance obligations will be fulfilled as expected within the next five years. Revenues for performance obligations totaling €18,728.7 million (previous year: €23,078.9 million) are expected to be fulfilled within the next financial year. Variable considerations are only taken into account in the figures if they can be estimated with reasonable certainty and are not subject to limits. Remaining performance obligations from customer contracts which originally had an expected maximum term of one year, or for which the value of already performed services is invoiced directly, are not included.

As of 31 December 2023, contract liabilities amounted to €1,177.0 million (previous year: €1,082.3 million). From the contract liabilities contained in the opening balance of €1,082.3 million (previous year: €986.5 million), €66.5 million (previous year: €67.3 million) was recognized as revenue within the reporting period. The contract liabilities mainly comprise construction cost subsidies and household connection costs. These are non-refundable prepayments that are carried as liabilities and reversed over a period of 20 to 45 years.

Please refer to note (26) "Accounting for financial instruments" for the development of receivables connected to customer contracts.

In the reporting period, revenues of €535.2 million (previous year: €239.3 million) were recognized for performance obligations that were fulfilled either fully or partially in preceding periods.

(2) Other operating income

in € million	2023	2022
Income from derivatives	3,313.7	3,971.4
Income from the reversals of provisions	130.6	671.3
Income from reversals of impairment losses on non-financial assets	120.9	1,499.2
Rent and lease income	21.8	18.7
Income from disposals of assets	12.8	24.1
Miscellaneous	907.6	1,163.3
Total	**4,507.4**	**7,348.0**

Income from derivatives fell mainly due to valuation effects as a result of the volatile market environment and lower market prices.

The reversals of impairment losses included €47.7 million for one of the gas storage facilities in the Sustainable Generation Infrastructure segment. The recoverable amount is around €0.2 billion. This reversal of impairment losses was mainly due to improved earnings forecasts both in the medium and long term. In addition, a change to the expected service lives of the caverns, which were amended after a multi-year measurement cycle, also increased the value of these facilities. The increase in the discount rates weakened the described positive effects. The discount rates used in the valuation were between 6.9% and 7.7% after tax and between 9.8% and 11.0% before tax (previous year: between 6.6% and 6.9% after tax and between 9.5% and 9.8% before tax).

The reversals of impairment losses in the previous year included €1,254.2 million for one of the CGU for conventional power plants in the Sustainable Generation Infrastructure segment. The recoverable amount was around €–391 million. The reversals of impairment losses were mainly due to improved medium-term income forecasts as a result of the high gas and electricity prices at the time of the valuation. The discount rates used in the valuations were between 6.7% and 7.0% after tax and 9.6% and 9.9% before tax.

In addition, there was a reversal of impairment losses of €102.2 million for a second CGU for conventional power plants in the Sustainable Generation Infrastructure segment. The recoverable amount was around €713 million. The reversals of impairment losses were mainly due to improved medium-term income forecasts as a result of the high gas and electricity prices at the time of the valuation. The discount rates used in the valuations were between 6.5% and 6.7% after tax and 9.4% and 9.8% before tax.

For information on the determination of fair value, please refer to the explanations of "Impairment losses/reversals of impairment losses" in the section "Significant accounting policies" and the section "Disclosures on climate change."

All of the recoverable amounts were calculated on the basis of the fair value less costs to sell and correspond to Level 3 of the IFRS 13 fair value hierarchy.

There was a decrease in miscellaneous other operating income, which was primarily due to a settlement payment from the German federal government to a subsidiary in the previous year of €460.0 million as well as lower income from currency exchange rate gains of €40.7 million (previous year: €157.7 million). This was offset to some extent by higher income from CO_2 allowances and increased income from insurance payments. Miscellaneous other operating income also includes income from the reversal of accruals.

(3) Cost of materials

in € million	2023	2022
Cost of materials and supplies and of purchased merchandise	31,599.9	46,983.4
Cost of purchased services	4,125.3	4,165.0
Total	**35,725.2**	**51,148.4**

Cost of materials and supplies and of purchased merchandise comprises, in particular, electricity and gas procurement costs including increases in provisions for onerous contracts for procurement agreements. It also includes the necessary additions to the provisions for the decommissioning of nuclear power plants. However, the accretion of the provisions is not included. Fuel costs for conventional power plants, costs for the procurement of CO_2 allowances and the net result from energy trading transactions for the rolling procurement of emission allowances are also disclosed under this item.

Cost of purchased services mainly contains expenses for use of the grids, services purchased for the operation and maintenance of the plants as well as concession fees. In addition, other expenses directly attributable to services rendered are disclosed under cost of purchased services.

(4) Personnel expenses

in € million	2023	2022
Wages and salaries	2,424.4	2,119.3
Social security	227.7	205.6
Expenses for post-employment benefits	243.1	266.9
Total	**2,895.2**	**2,591.8**

Employees as an annual average

Number	2023	2022
Smart Infrastructure for Customers	5,594	5,182
System Critical Infrastructure	11,291	11,211
Sustainable Generation Infrastructure	7,403	7,168
Other	3,611	2,936
Employees	**27,899**	**26,497**
Apprentices and trainees including DH students in the Group	1,147	1,154

The total number includes employees of joint operations of 7 employees (previous year: 6) based on the proportion attributable to EnBW.

(5) Other operating expenses

in € million	2023	2022
Expenses from derivatives	2,261.1	3,495.0
Administrative and selling costs and other overheads	1,146.4	700.5
Audit, legal and consulting fees	210.7	175.1
Rent and lease expenses	157.5	115.7
Other personnel expenses	130.4	89.2
Dues and levies	123.7	123.9
Advertising expenses	115.5	82.1
Insurance	103.0	96.5
Other taxes	30.3	55.7
Costs from disposals of assets	13.1	20.3
Miscellaneous	512.4	428.1
Total	**4,804.1**	**5,382.1**

The decrease in other operating expenses was mainly attributable to lower expenses from derivatives. Analogous to how income from derivatives develops, this was primarily due to valuation effects as a result of a volatile market environment and lower market prices. This was offset to some extent by higher administrative and selling costs and other overheads, especially as a result of increased expenses related to the expansion of our gas business, which were mainly related to the expansion of our LNG business. There were also negative effects indirectly related to the incidents at SENEC and expenses associated with the deconsolidation of bmp greengas.

Miscellaneous other operating expenses mainly increased as a result of higher costs for warranty provisions at our subsidiary SENEC in the three-digit million euro range. This was offset to some extent by lower expenses from currency exchange rate losses of €63.3 million (previous year: €182.0 million) and by lower expenses for CO_2 allowances. In addition, miscellaneous other operating expenses contain, among other things, expenses for commissions.

(6) Amortization and depreciation

in € million	2023	2022
Amortization of intangible assets	308.6	527.1
Depreciation of property, plant and equipment	1,896.9	1,629.7
Depreciation of investment properties	0.9	5.5
Depreciation of right-of-use assets from leases	190.6	170.6
Reversals of investment cost subsidies [1]	0.0	-0.8
Total	**2,397.0**	**2,332.1**
of which scheduled depreciation	(1,686.2)	(1,615.3)
of which impairment losses	(710.8)	(716.8)

1 Reversals of investment cost subsidies have been reported in note (2) "Other operating income" since the 2023 financial year.

Please refer to note (10) "Intangible assets" for information on the impairment of goodwill.

Impairment losses totaling €101.7 million (previous year: €336.1 million) were recognized on intangible assets and €609.0 million (previous year: €376.2 million) on property, plant and equipment.

In the reporting year, there were impairment losses of €338.6 million recognized on a CGU for conventional power plants in the Sustainable Generation Infrastructure segment. The recoverable amount is around €240.2 million. This impairment was mainly attributable to poorer medium-term earnings forecasts as a result of currently falling electricity prices. The discount rates used in the valuation were between 6.8% and 7.6% after tax and between 9.7% and 10.9% before tax (previous year: between 6.7% and 7.0% after tax and between 9.6% and 9.9% before tax).

Impairment losses of €213.7 million were also recognized on two offshore wind farms in the Sustainable Generation Infrastructure segment. The recoverable amount is around €2.3 billion. The main reason for the impairments is successively fewer operating years with EEG funding. The discount rates were between 5.2% and 6.7% after tax and between 7.4% and 9.7% before tax (previous year: between 5.1% and 6.8% after tax and between 7.3% and 9.9% before tax).

In the previous year, impairment losses were mainly recognized on two offshore wind farms in the Sustainable Generation Infrastructure segment in the amount of €414.2 million. The main reasons for the impairment were higher capital costs, the successively fewer remaining operating years with EEG funding and new findings with respect to offshore wind conditions. The recoverable amount was around €2.4 billion. The discount rates used in the valuation were between 5.1% and 6.8% after tax and 7.3% and 9.8% before tax.

For information on the determination of fair value, please refer to the explanations of "Impairment losses/reversals of impairment losses" in the section "Significant accounting policies" and the section "Disclosures on climate change."

All of the recoverable amounts were calculated on the basis of the fair value less costs to sell and correspond to Level 3 of the IFRS 13 fair value hierarchy.

(7) Investment result

in € million	2023	2022
Share of profit/loss of entities accounted for using the equity method	88.9	62.5
Write-downs on entities accounted for using the equity method	-216.6	-122.1
Write-ups of entities accounted for using the equity method	13.1	83.4
Net profit/loss from entities accounted for using the equity method	**-114.6**	**23.8**
Result from investments	113.1	250.9
of which non-consolidated affiliated entities	(4.1)	(11.2)
Write-downs on investments	-95.7	-29.7
of which non-consolidated affiliated entities	(-78.0)	(-20.6)
Write-ups of investments	2.0	24.4
Result from the sale of equity investments	5.9	7.5
Other profit/loss from investments	**25.3**	**253.1**
Investment result (+ income/- expense)	**-89.3**	**276.9**

Net profit/loss from entities accounted for using the equity method

In the current financial year, there was a write-down of €59.9 million on the shares in an entity accounted for using the equity method in the Sustainable Generation Infrastructure segment. This write-down was mainly attributable to poorer medium-term earnings forecasts as a result of currently falling electricity prices.

There were also write-downs of €101.3 million related to a joint venture in Turkey, operated in US dollars, in the Sustainable Generation Infrastructure segment. This write-down was due to an increase in capital costs and changes to exchange rate assumptions. The recoverable amount is around €0.2 billion. The discount rates used in the valuations were between 13.9% and 14.5% after tax and between 18.5% and 19.3% before tax (previous year: between 10.6% and 11.7% after tax and between 13.3% and 14.6% before tax).

In the previous year, the write-downs at entities accounted for using the equity method included €84.6 million for a gas storage company in the Sustainable Generation Infrastructure segment. This write-down was attributable to a deterioration in the earnings potential as a result of the sanctions on Russia and the suspension of all fee payments. The recoverable amount was around €–42 million. The discount rate used in the valuation was 6.6% after tax and 9.4% before tax.

In the previous year, other write-ups of entities accounted for using the equity method of €57.7 million related to a conventional power plant in the Sustainable Generation Infrastructure segment. This write-up was mainly due to improved medium-term income forecasts as a result of the high gas and electricity prices at that point in time.

Other profit/loss from investments

Other profit/loss from investments contains expenses of €14.5 million (previous year: income of €0.7 million) from the market valuation of the “measured at fair value through profit or loss” measurement category.

There were total write-downs on investments in non-consolidated affiliated entities in the onshore sector in the Sustainable Generation Infrastructure segment of €40.4 million. These write-downs were due to project cancellations and delays. The recoverable amount is around €5 million. The discount rates used in the valuations were between 5.4% and 7.8% after tax and between 7.3% and 10.4% before tax (previous year: between 4.7% and 6.8% after tax and between 6.4% and 9.2% before tax).

In addition, there was a write-down on another investment in the photovoltaics sector in the System Critical Infrastructure segment of €35.8 million. This write-down on the balance sheet was attributable to changed market conditions in the photovoltaic sector in 2023. Increases in inflation and interest rates, regulatory uncertainty and unclear funding conditions meant that consumers were significantly more reticent with their investment decisions in comparison to the previous year. The outlook for market conditions in 2024 and subsequent years also falls below previous expectations. The recoverable amount is around €20 million. The discount rate was 6.9% after tax and 10.1% before tax (previous year: 6.6% after tax and 9.7% before tax).

In the previous year, the write-downs on investments mainly related to a write-down of €11.9 million on a non-consolidated affiliated entity in the Sustainable Generation Infrastructure segment. The main reason for this write-down was the cessation of operations at a subsidiary that had previously made a contribution to the value of the entity. The recoverable amount was around €20 million.

Write-ups on investments in the previous year mainly related to non-consolidated affiliated entities in the Sustainable Generation Infrastructure segment. The main reason for a write-up on investments in companies related to the project business in the area of Renewable Energies was an improved medium- to long-term income forecast as a result of high electricity prices in 2022. The discount rates used in the valuation were between 4.8% and 6.8% after tax and 6.4% and 9.2% before tax.

For information on the determination of fair value, please refer to the explanations of "Impairment losses/reversals of impairment losses" in the section "Significant accounting policies" and the section "Disclosures on climate change."

All of the recoverable amounts were calculated on the basis of the fair value less costs to sell and correspond to Level 3 of the IFRS 13 fair value hierarchy.

(8) Financial result

in € million	2023	2022
Interest and similar income	351.5	126.5
Interest portion on the reversal of liabilities	178.0	615.3
Other finance income	330.7	297.5
Finance income	**860.2**	**1,039.3**
Borrowing costs	-484.0	-290.9
Other interest and similar expenses	-36.1	-15.9
Interest portion of increases in liabilities	-326.0	-99.6
Personnel provisions	(-198.1)	(-94.7)
Provisions relating to nuclear power	(-104.4)	(-0.5)
Other non-current provisions	(-22.0)	(-4.4)
Other liabilities	(-1.5)	(0.0)
Other finance costs	-425.5	-655.6
Finance costs	**-1,271.6**	**-1,062.0**
Financial result (+ income/- costs)	**-411.4**	**-22.7**

Interest and similar income mainly comprises interest income from interest-bearing securities and loans, as well as dividends and shares in profits. The income from the interest portion on the reversal of liabilities was primarily attributable to the increase in the discount rate for long-term provisions. In the reporting period, interest income of €27.4 million (previous year: €9.9 million) was offset against economically related interest expenses. In the reporting period, other finance income includes income from the "measured at fair value through profit or loss" measurement category of €235.1 million (previous year: €182.6 million).

Borrowing costs are composed as follows:

in € million	2023	2022
Expenses incurred for bank interest and bonds	349.1	192.7
Interest portion of lease liabilities	23.8	16.2
Other borrowing costs	111.1	82.0
Borrowing costs	**484.0**	**290.9**

The interest portion of increases in liabilities relates mainly to the annual accretion of the non-current provisions.

In the reporting period, other finance costs mainly included costs from the "measured at fair value through profit or loss" measurement category of €154.4 million (previous year: €337.3 million). In addition, they also contained market price losses on the sale of securities amounting to €99.3 million (previous year: €75.2 million).

The total interest income and expenses for financial assets and financial liabilities presented in the financial result breaks down as follows:

Total interest income and expenses

in € million	2023	2022
Total interest income	189.6	74.3
Total interest expenses	-396.7	-241.6

The total interest income and expenses arose from financial instruments that are not measured at fair value through profit or loss. The main items here are interest received from loans and bank balances, which are measured at amortized cost, as well as interest and dividends received from financial assets allocated to the "measured at fair value in equity" measurement category. Total interest income comprised the interest income from the "measured at amortized cost" measurement category of €129.7 million (previous year: €39.9 million) and the interest income from the “measured at fair value in equity” measurement category of €59.9 million (previous year: €34.4 million). In the reporting period, the interest expenses for the financial assets measured at amortized cost totaling €396.7 million (previous year: €241.6 million) were incurred particularly on bonds, bank liabilities and lease liabilities, as in the previous year.

(9) Income tax

in € million	2023	2022
Actual income tax		
Domestic corporate income tax	402.1	317.1
Domestic trade tax	390.4	165.6
Foreign income taxes	102.5	108.2
Total (- income/+ expense)	**895.0**	**591.0**
Deferred taxes [1]		
Germany	123.1	59.8
Abroad	-10.0	-99.4
Total (- income/+ expense)	**113.1**	**-39.5**
Income tax (- income/+ expense)	**1,008.1**	**551.5**

1 The figures for the previous year have been restated.

The actual income tax amounting to €895.0 million (previous year: €591.0 million) concerns income tax expenses from the current financial year of €937.3 million (previous year: €548.2 million) and income tax income for past periods of €42.3 million (previous year: expenses of €42.8 million).

Deferred tax expenses of €113.1 million (previous year: income of €39.5 million) consists of the deferred tax expense from the current financial year of €159.4 million (previous year: €115.1 million) and deferred tax income for past periods of €46.3 million (previous year: €154.6 million).

The change in the actual income tax income and deferred tax income for past periods was mainly due to tax audits and changes in the tax assessments. The balance from deferred taxes does not contain any income (previous year: €2.2 million) related to a change in tax rates.

As in the previous year, the corporate income tax rate was 15.0% plus a solidarity surcharge of 5.5% of the corporate income tax. The trade tax rate was 13.9% (previous year: 13.9%). This represents a tax rate on income of 29.7% (previous year: 29.7%). For the foreign entities, the tax rate applicable in the country in which they are based of between 19.0% and 25.8% (as in the previous year) is used to calculate income taxes. Deferred tax assets and liabilities are measured at the tax rates expected to apply when the asset is realized or the liability is settled.

Deferred taxes comprise the following:

in € million	2023	2022
Origination or reversal of temporary differences	165.1	-149.4
Origination of carryforwards of unused tax losses	-85.5	-26.7
Utilization of carryforwards of unused tax losses	18.5	136.6
Write-down of tax loss carryforwards recognized in previous years	15.0	0.0
Deferred taxes (- income/+ expense)	**113.1**	**-39.5**

The reconciliation from the expected income tax expense to the effective income tax expense is presented below:

in € million[1]	2023	in %	2022	in %
Earnings before tax	**2,840.7**		**2,395.3**	
Expected tax rate		29.7		29.7
Expected income tax (- income/+ expense)	**843.7**		**711.4**	
Tax effects				
Differences in foreign tax rates and tax rate differences	-57.7	-2.0	-48.9	-2.0
Tax-free income	-123.3	-4.3	-178.1	-7.4
Non-deductible expenses	123.0	4.3	87.3	3.6
Depreciation of losses on goodwill	5.4	0.2	55.5	2.3
Add-backs and reductions for trade tax purposes	23.0	0.8	14.6	0.6
Accounting for joint ventures and associates using the equity method	35.7	1.3	-4.8	-0.2
Adjustment/valuation/non-recognition of carryforwards of unused tax losses and temporary differences	251.7	8.9	28.7	1.2
Zero-rated disposals of investments	-3.7	-0.1	-2.4	-0.1
Taxes relating to other periods	-88.4	-3.1	-111.7	-4.7
Other	-1.3	-0.2	-0.1	-0.1
Current income tax (- income/+ expense)	**1,008.1**		**551.5**	
Current tax rate		**35.5**		**23.0**

1 The figures for the previous year have been restated.

The EnBW Group falls under the Global Anti-Base Erosion Model Rules of the OECD (Pillar Two model rules). The minimum tax rates relevant to the EnBW Group are valid initially for financial years that start after 31 December 2023.

The Pillar Two rules envisage the introduction of a top-up tax if the stipulated minimum tax rate is less than 15%. The EnBW Group would then be subject to a top-up tax equal to the difference between the effective tax rate according to the Pillar Two rules and the minimum tax rate of 15%. Based on the Country-by-Country Reporting (CbCR) for 2022 and projected figures for financial years beginning after 31 December 2023, all of the jurisdictions relevant to the EnBW Group, except for Switzerland which will impose a qualified national top-up tax, are presumed to have a minimum tax rate of 15%.

The EnBW Group is currently carrying out a comprehensive assessment of the impact of the Pillar Two rules for financial years starting after 31 December 2023. No significant impact is expected.

(10) Intangible assets

in € million	Concessions, industrial property rights and similar rights and assets	Internally generated intangible assets	Goodwill	Other	Total
Cost					
As of 01/01/2023	3,817.1	136.1	1,386.6	72.3	5,412.1
Increase/decrease due to changes in the consolidated companies	32.3	0.0	2.1	0.0	34.4
Additions	96.8	38.0	0.0	64.1	198.9
Reclassifications	23.7	1.7	0.0	-24.1	1.3
Currency adjustments	15.1	0.0	-6.8	0.0	8.3
Disposals	-26.5	-0.3	0.0	-0.5	-27.3
As of 31/12/2023	3,958.5	175.5	1,381.9	111.8	5,627.7
Accumulated amortization					
As of 01/01/2023	1,843.2	93.0	257.3	0.3	2,193.8
Decrease due to changes in the consolidated companies	-10.4	0.0	-12.8	0.0	-23.2
Additions	188.1	18.8	0.0	0.0	206.9
Currency adjustments	6.3	0.0	0.0	0.0	6.3
Disposals	-24.0	-0.1	0.0	0.0	-24.1
Impairment	74.3	0.9	18.3	8.2	101.7
Reversal of impairment losses	-0.1	0.0	0.0	0.0	-0.1
As of 31/12/2023	2,077.4	112.6	262.8	8.5	2,461.3
Carrying amounts					
As of 31/12/2023	1,881.1	62.9	1,119.1	103.3	3,166.4

in € million	Concessions, industrial property rights and similar rights and assets	Internally generated intangible assets	Goodwill	Other	Total
Acquisition or production costs					
As of 01/01/2022	3,643.2	106.3	1,364.2	54.4	5,168.1
Increase/decrease due to changes in the consolidated companies	3.6	0.0	13.9	0.0	17.5
Additions	131.4	24.4	0.0	45.5	201.3
Reclassifications	22.8	5.5	0.0	-26.9	1.4
Currency adjustments	21.9	0.0	8.5	0.0	30.4
Disposals	-5.8	-0.1	0.0	-0.7	-6.6
As of 31/12/2022	3,817.1	136.1	1,386.6	72.3	5,412.1
Accumulated amortization					
As of 01/01/2022	1,610.5	70.1	70.5	0.0	1,751.1
Decrease due to changes in the consolidated companies	-0.2	0.0	0.0	0.0	-0.2
Additions	168.1	22.9	0.0	0.0	191.0
Currency adjustments	11.1	0.0	0.0	0.0	11.1
Disposals	-4.7	0.0	0.0	0.0	-4.7
Impairment	148.9	0.0	186.8	0.3	336.0
Reversal of impairment losses [1]	-90.5	0.0	0.0	0.0	-90.5
As of 31/12/2022	1,843.2	93.0	257.3	0.3	2,193.8
Carrying amounts					
As of 31/12/2022	1,973.9	43.1	1,129.3	72.0	3,218.3

1 The reversals of impairment losses primarily relate to one cash-generating unit for conventional power plants in the Sustainable Generation Infrastructure segment.

The carrying amount of the intangible assets includes concessions to operate power plants amounting to €1,261.6 million (previous year: €1,387.3 million) and customer relationships amounting to €74.5 million (previous year: €74.3 million).

In the 2023 financial year, a total of €38.8 million (previous year: €28.1 million) was spent on research and development. The criteria for recognition under IFRS were not satisfied.

The following table shows the main amounts for goodwill allocated to the business segments at CGU level:

	Goodwill in € million		Discount rates after tax in % [1]	
	2023	2022	**2023**	2022
Smart Infrastructure for Customers	**197.0**	**213.2**		
Plusnet subgroup	**81.6**	81.6	**5.7**	4.8
Senec subgroup	**50.2**	50.2	**6.6**	6.6
PRE	**44.7**	45.8	**7.6**	7.4
Other CGU	**20.5**	35.6	**–**	–
System Critical Infrastructure	**405.4**	**410.2**		
PRE	**191.2**	196.0	**5.5**	4.6
Netze BW GmbH	**87.9**	87.9	**4.5 – 6.6**	3.9 – 4.2
Stadtwerke Düsseldorf AG	**51.4**	51.4	**4.4**	3.8
ONTRAS Gastransport GmbH	**45.3**	45.3	**4.5**	3.7
Other CGU	**29.5**	29.5	**–**	–
Sustainable Generation Infrastructure	**516.6**	**505.9**		
Valeco subgroup	**250.5**	250.5	**5.2 – 7.5**	3.9 – 6.5
Energiedienst AG	**83.7**	83.7	**5.1 – 7.2**	3.9 – 6.6
Stadtwerke Düsseldorf AG	**63.2**	63.2	**6.4 – 7.2**	5.6 – 6.3
EnBW AG conventional generation	**60.3**	60.3	**5.5 – 7.4**	4.4 – 6.6
Other CGU	**58.9**	48.2	**–**	–
Other/Consolidation	**0.1**	**0.0**		
Total	**1,119.1**	**1,129.3**	**–**	**–**

1 Discount rates as of the reporting date of 30 September of the respective financial year. The discount rate before tax was 6.4% – 10.6% (previous year: 5.5% – 9.2%).

The goodwill allocated to the CGUs accounted for less than 5.3% (previous year: 4.3%) of total goodwill in each case. Its aggregate total was €109.0 million (previous year: €113.3 million).

The goodwill presented in the table was tested for impairment at the level of the respective CGU on 30 September 2023. In the current financial year, additional impairment tests were also carried out on 31 December 2023, in some cases due to the sharp increase in capital costs.

In the 2023 financial year, there were impairment losses on goodwill of €18.3 million (previous year: €186.8 million). In the reporting year, the impairment losses related to goodwill at Energiedienst AG in the Smart Infrastructure for Customers segment (recoverable amount: €280.0 million). The reason for these impairment losses was increases in capital costs in this segment, which amounted to 7.1% after tax (previous year: 6.8%) and 10.1% before tax (previous year: 9.6%) when calculating the impairment losses on 31 December 2023.

In the previous financial year, there were impairment losses on goodwill of €174.0 million in the System Critical Infrastructure segment. The impairments mainly related to goodwill at ONTRAS Gastransport GmbH in the amount of €81.9 million (recoverable amount: €1,669.4 million), at Energiedienst AG in the amount of €35.9 million (recoverable amount: €407.1 million) and at ZEAG Energie AG in the amount of €31.1 million (recoverable amount: €175.2 million). The impairment losses were due to increased capital costs in the segment.

For information on the determination of fair value, please refer to the explanations of "Impairment losses/reversals of impairment losses" in the section "Significant accounting policies" and the section "Disclosures on climate change."

All of the recoverable amounts were calculated on the basis of the fair value less costs to sell and correspond to Level 3 of the IFRS 13 fair value hierarchy.

As part of the impairment tests, sensitivity analyses were carried out to investigate the impact of an increase in the discount rate.

The recoverable amount of goodwill for Stadtwerke Düsseldorf in the System Critical Infrastructure segment exceeded the carrying amount on 30 September 2023 by around €35 million (discount rate after tax: 4.4%). If the capital costs had risen in isolation by around 0.4%, the recoverable amount would have corresponded to the carrying amount.

(11) Property, plant and equipment

in € million	Land and buildings	Power plants	Distribution plants	Other equipment	Fixed assets under construction	Total
Cost						
As of 01/01/2023	4,465.3	22,166.1	19,912.0	2,147.0	4,044.8	**52,735.2**
Increase/decrease due to changes in the consolidated companies	9.2	78.7	16.0	2.0	99.7	**205.6**
Additions	101.1	74.8	755.7	84.2	3,327.8	**4,343.6**
Reclassifications	67.5	238.5	344.0	66.1	-722.1	**-6.0**
Reclassification to assets held for sale	0.0	-0.4	0.0	0.0	0.0	**-0.4**
Currency adjustments	-2.8	17.0	-37.3	1.5	0.4	**-21.2**
Disposals	-4.7	-88.1	-134.6	-27.5	-11.5	**-266.4**
As of 31/12/2023	4,635.6	22,486.6	20,855.8	2,273.3	6,739.1	**56,990.4**
Accumulated amortization						
As of 01/01/2023	2,326.1	16,221.0	10,758.9	1,553.0	12.4	**30,871.4**
Decrease due to changes in the consolidated companies	0.0	0.0	0.0	-0.7	0.0	**-0.7**
Additions	85.8	584.5	511.4	116.4	0.0	**1,298.1**
Reclassifications	5.8	16.0	-3.5	-15.4	0.0	**2.9**
Reclassification to assets held for sale	0.0	0.0	0.0	0.0	0.0	**0.0**
Currency adjustments	-1.5	11.6	-20.0	1.1	0.0	**-8.8**
Disposals	-2.5	-41.7	-112.6	-22.5	0.0	**-179.3**
Impairment	99.5	452.5	22.9	12.4	11.6	**598.9**
Reversal of impairment losses [1]	-24.2	-74.9	-14.5	-7.2	0.0	**-120.8**
As of 31/12/2023	2,489.0	17,169.0	11,142.6	1,637.1	24.0	**32,461.7**
Carrying amounts						
As of 31/12/2023	2,146.6	5,317.6	9,713.2	636.2	6,715.1	**24,528.7**

1 The reversals of impairment losses primarily relate to one of the cash-generating units for conventional power plants in the Sustainable Generation Infrastructure segment.

in € million	Land and buildings	Power plants	Distribution plants	Other equipment	Fixed assets under construction	Total
Cost						
As of 01/01/2022	4,366.1	21,963.2	19,058.0	2,064.2	2,766.5	**50,218.0**
Increase/decrease due to changes in the consolidated companies	0.4	9.0	0.7	0.3	6.9	**17.3**
Additions	64.9	185.6	626.0	74.8	1,756.3	**2,707.6**
Reclassifications	39.8	232.0	238.5	32.1	-474.6	**67.8**
Reclassification to assets held for sale	0.0	-63.8	0.0	0.0	0.0	**-63.8**
Currency adjustments	5.0	12.3	51.6	0.7	0.7	**70.3**
Disposals	-10.9	-172.2	-62.8	-25.1	-11.0	**-282.0**
As of 31/12/2022	4,465.3	22,166.1	19,912.0	2,147.0	4,044.8	**52,735.2**
Accumulated amortization						
As of 01/01/2022	2,561.5	16,278.7	10,326.9	1,464.1	11.7	**30,642.9**
Additions	63.3	603.6	479.1	109.1	0.0	**1,255.1**
Reclassifications	0.0	75.9	2.1	0.0	0.0	**78.0**
Reclassification to assets held for sale	0.0	-56.0	0.0	0.0	0.0	**-56.0**
Currency adjustments	2.4	10.9	25.7	0.6	0.0	**39.6**
Disposals	-4.7	-7.1	-37.3	-18.0	-1.6	**-68.7**
Impairment	1.4	365.5	3.2	2.2	2.3	**374.6**
Reversal of impairment losses [1]	-297.8	-1,050.5	-40.8	-5.0	0.0	**-1,394.1**
As of 31/12/2022	2,326.1	16,221.0	10,758.9	1,553.0	12.4	**30,871.4**
Carrying amounts						
As of 31/12/2022	2,139.2	5,945.1	9,153.1	594.0	4,032.4	**21,863.8**

1 The reversals of impairment losses primarily relate to one of the cash-generating units for conventional power plants in the Sustainable Generation Infrastructure segment.

Items of property, plant and equipment amounting to €131.7 million (previous year: €164.6 million) serve as collateral for liabilities to banks, of which real estate liens account for €0.1 million (previous year: €0.1 million).

The Group's capital expenditure on intangible assets and property, plant and equipment totaling €4,403.8 million (previous year: €2,770.7 million) can be derived from the statement of changes in non-current assets as follows:

in € million	2023	2022
Additions to intangible assets, property, plant and equipment and right-of-use assets according to the statement of changes in non-current assets	**4,790.0**	3,136.1
Less non-cash-relevant additions to intangible assets and property, plant and equipment	**-118.7**	-44.2
Less additions to assets recognized as right-of-use assets under leases	**-247.6**	-227.2
Less additions to the provision recognized for the decommissioning and dismantling of property, plant and equipment	**-19.9**	-94.0
Cash-relevant capital expenditure on intangible assets and property, plant and equipment	**4,403.8**	**2,770.7**

(12) Leases

Lessee disclosures

The following table shows the development of the rights-of-use assets from leases:

in € million	Land and buildings	Power plants	Distribution plants	Other equipment	Total
Right-of-use assets					
As of 01/01/2023	416.6	188.2	722.7	133.1	1,460.6
Increase/decrease due to changes in the consolidated companies	11.3	0.0	0.0	0.0	11.3
Additions	105.0	0.0	95.7	46.8	247.5
Reclassifications	0.0	0.0	0.0	-0.1	-0.1
Currency adjustments	0.2	0.0	-1.8	-0.1	-1.7
Disposals	-8.2	-1.7	-9.7	-11.7	-31.3
As of 31/12/2023	524.9	186.5	806.9	168.0	1,686.3
Accumulated amortization					
As of 01/01/2023	117.9	118.6	318.0	64.8	619.3
Additions	52.4	13.4	87.8	26.9	180.5
Reclassifications	0.0	-2.8	0.0	-0.2	-3.0
Currency adjustments	0.0	0.0	-0.4	-0.1	-0.5
Disposals	-6.8	0.0	-5.1	-9.2	-21.1
Impairment	0.0	10.1	0.0	0.0	10.1
As of 31/12/2023	163.5	139.3	400.3	82.2	785.3
Carrying amounts					
As of 31/12/2023	361.4	47.2	406.6	85.8	901.0

in € million	Land and buildings	Power plants	Distribution plants	Other equipment	Total
Right-of-use assets					
As of 01/01/2022	357.2	202.9	593.4	112.7	1,266.2
Increase/decrease due to changes in the consolidated companies	0.3	0.0	0.0	-0.1	0.2
Additions	69.7	2.2	129.3	26.0	227.2
Currency adjustments	0.0	0.0	2.2	0.2	2.4
Disposals	-10.6	-16.9	-2.2	-5.7	-35.4
As of 31/12/2022	416.6	188.2	722.7	133.1	1,460.6
Accumulated amortization					
As of 01/01/2022	87.9	111.6	230.5	46.5	476.5
Decrease due to changes in the consolidated companies	-0.1	0.0	0.0	0.0	-0.1
Additions	38.1	18.4	89.0	23.6	169.1
Currency adjustments	0.1	0.0	0.4	0.1	0.6
Disposals	-6.6	0.0	-1.9	-5.3	-13.8
Impairment	0.0	1.6	0.0	0.0	1.6
Reversal of impairment losses	-1.5	-13.0	0.0	-0.1	-14.6
As of 31/12/2022	117.9	118.6	318.0	64.8	619.3
Carrying amounts					
As of 31/12/2022	298.7	69.6	404.7	68.3	841.3

The lease liabilities are due as follows:

in € million	31/12/2023		31/12/2022	
	Nominal value	Present value	Nominal value	Present value
Due within 1 year	193.4	174.1	170.8	157.7
Due in 1 to 5 years	450.9	393.9	417.9	378.0
Due in more than 5 years	539.4	418.4	456.8	376.8
Total	**1,183.7**	**986.4**	**1,045.5**	**912.5**

The effects on the income statement due to leases break down as follows:

in € million	2023	2022
Expenses from short-term leases	2.6	2.1
of which other operating expenses	(2.6)	(2.1)
Expenses from leases involving low-value assets	4.9	4.2
of which cost of materials	(0.0)	(0.1)
of which other operating expenses	(4.9)	(4.1)
Variable lease payments [1]	24.9	30.6
of which cost of materials [1]	(24.8)	(30.2)
of which other operating expenses	(0.1)	(0.4)
Depreciation of right-of-use assets	190.6	170.7
Interest portion of lease liability	23.8	16.2

1 The figures for the previous year have been restated.

The cash flow statement is impacted as follows:

in € million	2023	2022
Repayment portion of the lease liabilities	175.2	183.3
Interest portion of lease liabilities	23.8	16.2
Expenses from short-term leases, leases involving low-value assets and variable lease payments [1]	32.8	38.9
Total	**231.8**	**238.4**

1 The figures for the previous year have been restated.

The repayment and interest portions of the lease liabilities are recognized in cash flow from financing activities. The cash flow from operating activities contains the expenses from short-term leases, leases involving low-value assets and variable lease payments.

The financial commitments from short-term leases and leases involving low-value assets are included in note (27) "Contingent liabilities and other financial commitments."

In the EnBW Group, there are agreements for variable lease payments totaling €384.9 million (previous year: €502.9 million), which mainly relate to long-term electricity procurement agreements from solar and wind power plants. Alongside leases that have not yet begun, totaling €90.9 million (previous year: €90.9 million), which relate to electricity procurement agreements, there are other leases that have not yet begun, totaling €1,475.2 million, which relate mainly to energy industry lease relationships, the lease of transport capacities, vehicles and office space (previous year: €202.3 million for energy industry lease relationships, vehicles and office space). Furthermore, the EnBW Group has leases with extension and termination options totaling €281.8 million (previous year: €258.6 million), which were not taken into account initially in the rights-of-use assets and corresponding lease liabilities because they were assessed as being not reasonably certain.

Lessor disclosures

The finance lease receivables of €81.6 million (previous year: €43.8 million) arose from supply contracts for various forms of energy such as electricity, heat, cooling and compressed air (so-called contracting agreements), under which the economic ownership of the leased technical equipment and machinery is allocable to the lessee. The lease payments receivable are due as follows:

in € million	31/12/2023	31/12/2022
Due within 1 year	8.5	6.6
Due in 1 to 2 years	8.5	5.6
Due in 2 to 3 years	8.5	5.4
Due in 3 to 4 years	7.9	5.3
Due in 4 to 5 years	7.5	4.6
Due in more than 5 years	40.7	16.3
Total	**81.6**	**43.8**

The lease payments receivable can be reconciled with the net investment in the lease as follows:

in € million	31/12/2023	31/12/2022
Nominal value of lease payments	81.6	43.8
Gross investment	**81.6**	**43.8**
Finance income not yet realized	-27.9	-11.2
Net investment	**53.7**	**32.6**

The outstanding receivables from finance leases in the 2023 financial year include impairment losses of €0.5 million (previous year: €0.3 million). The loss rate (weighted average) is 1.0% (previous year: 0.8%). No lease receivables are overdue.

The finance income on net investment in finance leases was €4.1 million (previous year: €2.2 million).

The claims due to the EnBW Group from operating leases of €108.3 million (previous year: €134.3 million) are mainly attributable to contracting agreements and renting out commercial and residential real estate and usable areas. In the case of leases for real estate and usable areas, there are general termination risks that are classified overall as low due to the potential to rent them again. For contracting agreements, there is a reutilization risk, should the agreement be terminated, due to the high level of customization in some cases. There is also a reutilization risk in relation to the lease of photovoltaic power plants and associated storage systems for those plants that are not purchased by the customer at their residual value at the end of the contractual term, and which have to be dismantled as a result.

The lease payments receivable from operating leases are due as follows:

in € million	2023	2022
Due within 1 year	21.4	25.4
Due in 1 to 2 years	9.6	11.0
Due in 2 to 3 years	7.7	9.2
Due in 3 to 4 years	9.9	7.8
Due in 4 to 5 years	6.3	7.1
Due in more than 5 years	53.4	73.8
Total	**108.3**	**134.3**

For materiality reasons, operating leases are not reported separately under property, plant and equipment. Income from operating leases in the 2023 financial year was €27.1 million (previous year: €27.2 million).

(13) Entities accounted for using the equity method

Both joint ventures and associates are accounted for using the equity method.

The following table shows a summary of the financial information for the entities accounted for using the equity method:

Financial data (EnBW's interest)

in € million	2023		2022	
	Associates	Joint ventures	Associates	Joint ventures
Carrying amount of entities accounted for using the equity method	598.2	795.2	648.0	485.9
Net profit/loss for the year from continuing operations	61.1	27.9	33.1	29.4
Other income	0.2	-4.9	1.7	10.9
Total comprehensive income	**61.3**	**23.0**	**34.8**	**40.3**

Elektrizitätswerk Rheinau AG and Fernwärme Ulm GmbH have a different reporting date and are consolidated with the figures from their financial statements for the year ending 30 September 2023.

(14) Other financial assets

in € million	Shares in affiliated entities	Other investments[1]	Non-current securities	Investment properties	Loans	Total
Cost						
As of 01/01/2023	368.1	2,749.7	3,297.9	56.4	418.5	6,890.6
Increase/decrease due to changes in the consolidated companies	-26.1	-3.5	0.0	0.0	-140.9	-170.5
Additions	74.7	308.5	2,344.1	0.1	138.0	2,865.4
Reclassifications	3.6	-3.4	-96.2	-1.0	-9.2	-106.2
Currency adjustments	0.0	1.9	0.0	0.0	0.3	2.2
Disposals	-2.4	-384.0	-1,960.0	0.0	-112.8	-2,459.2
As of 31/12/2023	417.9	2,669.2	3,585.8	55.5	293.9	7,022.3
Accumulated amortization						
As of 01/01/2023	100.5	100.1	0.0	16.3	113.7	330.6
Decrease due to changes in the consolidated companies	-0.8	0.8	0.0	0.0	0.0	0.0
Additions	0.0	0.0	0.0	0.9	36.0	36.9
Impairment	78.0	17.7	0.0	0.0	41.7	137.4
Reclassifications	0.0	0.2	0.0	0.0	-0.2	0.0
Disposals	-1.8	-0.8	0.0	0.0	-93.0	-95.6
Reversal of impairment losses	-1.8	-0.2	0.0	0.0	-13.3	-15.3
As of 31/12/2023	174.1	117.8	0.0	17.2	84.9	394.0
Carrying amounts						
As of 31/12/2023	243.8	2,551.4	3,585.8	38.3	209.0	6,628.3

1 The carrying amounts include €2,245.6 million accounted for by investments held as financial assets.

in € million	Shares in affiliated entities	Other investments[1]	Non-current securities	Investment properties	Loans	Total
Cost						
As of 01/01/2022	267.5	2,511.9	3,946.1	56.3	141.6	6,923.4
Increase/decrease due to changes in the consolidated companies	54.2	-18.9	0.0	0.0	-4.1	31.2
Additions	46.6	478.8	2,096.7	0.0	190.4	2,812.5
Reclassifications	0.0	0.0	-77.1	0.2	92.9	16.0
Currency adjustments	0.0	2.0	0.0	0.0	0.2	2.2
Disposals	-0.2	-224.1	-2,667.8	-0.1	-2.5	-2,894.7
As of 31/12/2022	368.1	2,749.7	3,297.9	56.4	418.5	6,890.6
Accumulated amortization						
As of 01/01/2022	71.6	91.5	0.0	10.7	5.2	179.0
Decrease due to changes in the consolidated companies	31.4	0.0	0.0	0.0	0.0	31.4
Additions	0.0	0.0	0.0	0.9	1.5	2.4
Impairment	20.6	9.1	0.0	4.6	108.7	143.0
Reclassifications	0.0	0.9	0.0	0.2	-0.4	0.7
Disposals	-0.1	0.0	0.0	-0.1	-0.3	-0.5
Reversal of impairment losses	-23.0	-1.4	0.0	0.0	-1.0	-25.4
As of 31/12/2022	100.5	100.1	0.0	16.3	113.7	330.6
Carrying amounts						
As of 31/12/2022	267.6	2,649.6	3,297.9	40.1	304.8	6,560.0

1 The carrying amounts include €2,345.3 million accounted for by investments held as financial assets.

The investments in affiliated entities are entities that are not included in the consolidated financial statements due to immateriality.

The non-current securities are mainly fixed-income securities as well as listed shares. To a large extent, the non-current securities are held in special funds. For consolidation purposes, the individual securities in the special funds are shown separately in the consolidated balance sheet by type of investment. The non-current securities, loans and investments, which are held as financial assets, are available to cover the pension and nuclear provisions in the amount of €5,829.5 million (previous year: €5,642.1 million). Of the loans, €206.2 million (previous year: €303.5 million) is allocated to capital employed.

The loans consist of loans to affiliated entities amounting to €163.1 million (previous year: €258.4 million), loans to entities accounted for using the equity method of €19.7 million (previous year: €21.6 million), loans to investments held as financial assets of €0.8 million (previous year: €1.3 million) and to operative investments allocated to capital employed of €12.7 million (previous year: €15.9 million), other loans allocated to capital employed of €10.7 million (previous year: €7.5 million) and loans of €2.0 million (previous year: €0.0 million).

(15) Trade receivables

in € million			31/12/2023			31/12/2022
	Current	Non-current	Total	Current	Non-current	Total
Trade receivables	4,575.6	370.1	4,945.7	5,591.3	329.4	5,920.7
of which receivables from affiliated entities	(43.9)	(0.0)	(43.9)	(56.6)	(0.0)	(56.6)
of which receivables from other investees and investors	(90.0)	(0.0)	(90.0)	(78.4)	(0.0)	(78.4)
of which receivables from entities accounted for using the equity method	(33.1)	(0.0)	(33.1)	(28.9)	(0.0)	(28.9)

Further details on loss allowances and default risks can be found in note (26) "Accounting for financial instruments."

Non-current trade receivables principally include receivables relating to electricity supplies, whose term to maturity does not match the customary business cycle.

(16) Other assets

in € million			31/12/2023			31/12/2022
	Current	Non-current	Total	Current	Non-current	Total
Income tax refund claims	135.3	0.0	135.3	192.9	0.0	192.9
Other tax refund claims	435.4	0.2	435.6	297.7	0.1	297.8
Interest from tax refunds	2.8	0.0	2.8	5.6	0.0	5.6
Derivatives	6,310.1	1,179.9	7,490.0	10,734.7	2,662.5	13,397.2
of which without hedges	(6,133.7)	(1,139.6)	(7,273.3)	(10,530.2)	(2,362.4)	(12,892.6)
of which cash flow hedge	(176.4)	(30.0)	(206.4)	(202.0)	(279.5)	(481.5)
of which fair value hedge	(0.0)	(10.3)	(10.3)	(2.5)	(20.6)	(23.1)
Finance lease receivables	4.5	48.7	53.2	4.4	27.9	32.3
Payments on account	92.4	7.9	100.3	147.7	11.5	159.2
Prepaid expenses	248.3	99.5	347.8	386.9	97.3	484.2
of which Costs for obtaining contracts [1]	(11.2)	(13.9)	(25.1)	(11.2)	(7.9)	(19.1)
Miscellaneous assets	1,525.3	961.8	2,487.1	3,491.1	158.3	3,649.4
Total	**8,754.1**	**2,298.0**	**11,052.1**	**15,261.0**	**2,957.6**	**18,218.6**

1 According to IFRS 15.

Income tax refund claims mainly relate to tax overpayments in previous years. These arise as a consequence of a completed tax audit.

As a result of the high volatility and slight fall in prices on the energy trading markets, EnBW recorded a fall in derivatives.

Payments on account contain prepayments for electricity procurement agreements amounting to €19.0 million (previous year: €16.0 million).

Miscellaneous assets contain collateral for exchange-based and over-the-counter trading business amounting to €808.6 million (previous year: €2,700.8 million) as well as variation margins of €148.0 million (previous year: €4.6 million). A market interest rate is applied to the collateral provided for exchange-based trading business. This collateral will be used by the stock exchanges in the event that the obligations resulting from stock market transactions are not met. In addition, miscellaneous assets contain the surplus cover from benefit entitlements of €113.9 million (previous year: €106.0 million).

(17) Inventories

in € million	31/12/2023	31/12/2022
Materials and supplies	1,182.1	976.4
Work in progress	219.9	198.3
Finished goods and merchandise	1,362.3	2,634.4
Payments on account	39.7	26.6
Total	**2,804.0**	**3,835.7**

The decrease in finished goods and merchandise is mainly due to an easing of prices on the energy trading markets for gas in comparison to the previous year. It was also attributable to a lesser extent to a write-down of inventories related to battery storage systems at our subsidiary SENEC.

Materials and supplies are primarily influenced by the operation of the conventional power plants. The increase was primarily due to emission allowances.

In the reporting year, impairment losses of €157.5 million (previous year: €10.2 million) were recognized on inventories. There were reversals of impairment losses of €0.0 million (previous year: €8.5 million).

Expenses recognized for inventories are mainly included in the cost of materials.

A total of €1,276.0 million (previous year: €2,461.9 million) of the inventories are measured on the basis of the fair value (Level 2) less costs to sell, which almost exclusively referred to gas inventories. The valuation is based on directly or indirectly observable market prices.

(18) Financial assets

in € million	31/12/2023	31/12/2022
Securities and financial investments	2,551.5	945.2
Other current financial assets	526.6	403.1
Total	**3,078.1**	**1,348.3**

Securities and financial investments mainly comprise fixed deposits of €2.4 billion (previous year: €0.6 billion). Other current financial assets in the 2023 financial year and the previous year mainly relate to loans. In the reporting year, this item also includes receivables from minority shareholders for capital transactions. €90.2 million (previous year: €75.7 million) of the current financial assets are held to cover the pension and nuclear provisions, while €2,987.7 million (previous year restated: €1,272.6 million) is allocated to the operative business. This includes loans of €46.1 million (previous year: €47.3 million) and in the previous year included EEG funds of €625.0 million, which are allocated to capital employed.

(19) Cash and cash equivalents

Cash and cash equivalents relate primarily to bank deposits, largely in the form of time and day-to-day deposits whose original term is less than three months and that are only subject to an immaterial risk of fluctuation in value. Cash and cash equivalents of €193.4 million (previous year: €1,667.3 million) are subject to restrictions on disposal. This includes €134.0 million (previous year: €1,665.0 million) in EEG funds that may only be used for EEG payments and €57.0 million (previous year: €0.0 million) in KWKG funds, which similarly to the EEG funds must now be held in a separate bank account since the new Energy Financing Act (EnFG) came into force on 1 January 2023.

Cash and cash equivalents of €171.7 million (previous year: €185.0 million) are available to cover pension and nuclear provisions. Cash and cash equivalents of €5,823.5 million (previous year: €6,290.6 million) are allocated to the operative business. This includes the above-mentioned EEG and KWKG funds, which are allocated to capital employed.

(20) Equity

The development of equity and the total comprehensive income are presented separately in the statement of changes in equity. The components of total comprehensive income are presented in the statement of comprehensive income.

Subscribed capital

The share capital of EnBW AG amounts to €708,108,042.24 as of 31 December 2023 (previous year: €708,108,042.24) and is divided into 276,604,704 (previous year: 276,604,704) no-par-value bearer shares, all of which have been fully paid in. The no-par-value shares each represent an imputed share of €2.56 per share (previous year: €2.56 per share) of the subscribed capital.

Capital reserve

The capital reserve contains the amounts received from the issue of shares of EnBW AG which exceed the imputed value of the shares.

Revenue reserves

The revenue reserves primarily contain the pro rata revenue reserves of the parent company and the other companies included in the consolidation after the date of acquisition.

We will propose to the Annual General Meeting that a dividend of €1.50 (previous year: €1.10) per share be distributed from the retained earnings of EnBW AG. As of 31 December 2023, a total of 270,855,027 shares were entitled to dividends, as in the previous year. If the Annual General Meeting approves this proposal, the total amount distributed by EnBW AG for the 2023 financial year will be €406.3 million (previous year: €297.9 million).

Treasury shares

As of 31 December 2023, EnBW AG holds 5,749,677 treasury shares, as in the previous year. The acquisition cost of the treasury shares amounting to €204.1 million (previous year: €204.1 million) was deducted from the carrying amount of the equity. The amount of share capital attributable to them remains unchanged at €14,719,173.12. This corresponds to 2.1% of the subscribed capital, as in the previous year. The treasury shares were acquired on 28 and 29 December 1998 based on the authorization issued on 25 August 1998 by the Annual General Meeting pursuant to section 71 (1) no. 8 AktG. The acquisition was carried out with a view to planned cooperations with domestic and foreign energy suppliers, as well as industrial customers, that were to be underpinned by mutual capital participations.

The company has no rights or dividend entitlements from directly held treasury shares; they are not entitled to dividends. In accordance with the rulings of IFRS, the treasury shares are not recognized as securities, but are offset in one sum against equity in the balance sheet.

Other comprehensive income

For details on the changes recognized directly in equity on financial assets in the category "measured at fair value in equity" and on cash flow hedges, please refer to note (26) "Accounting for financial instruments."

Other comprehensive income comprises changes in the market value of financial assets in the category "measured at fair value in equity," changes in the market value of cash flow hedges, amounts recognized directly in equity for accounting for entities using the equity method, currency translation differences from the translation of financial statements of foreign entities and the revaluation of pensions and similar obligations.

Presentation of the components of other comprehensive income:

2023 in € million	Revaluation of pensions and similar obligations	Currency translation differences	Cash flow hedge	Financial assets at fair value in equity	Entities accounted for using the equity method	Shares of the shareholders of EnBW AG	Non-controlling interests	Total
Unrealized changes in market value in the current period	-532.5	3.3	196.9	107.6	-2.0	-226.7	-188.9	**-415.6**
Reclassification adjustments included in the income statement	0.0	0.0	-1,221.1	92.9	0.0	-1,128.2	0.0	**-1,128.2**
Total other comprehensive income before tax	**-532.5**	**3.3**	**-1,024.2**	**200.5**	**-2.0**	**-1,354.9**	**-188.9**	**-1,543.8**
Income tax	153.2	2.5	271.2	-59.0	0.0	367.9	37.9	**405.8**
Total other comprehensive income	**-379.3**	**5.8**	**-753.0**	**141.5**	**-2.0**	**-987.0**	**-151.0**	**-1,138.0**

2022 in € million[1]	Revaluation of pensions and similar obligations	Currency translation differences	Cash flow hedge	Financial assets at fair value in equity	Entities accounted for using the equity method	Shares of the shareholders of EnBW AG	Non-controlling interests	Total
Unrealized changes in market value in the current period	2,364.7	54.5	1,390.5	-287.7	2.7	3,524.7	107.3	**3,632.0**
Reclassification adjustments included in the income statement	0.0	0.0	855.1	55.2	0.0	910.3	-145.9	**764.4**
Total other comprehensive income before tax	**2,364.7**	**54.5**	**2,245.6**	**-232.5**	**2.7**	**4,435.0**	**-38.6**	**4,396.4**
Income tax	-604.9	-2.8	-672.9	68.6	0.0	-1,212.0	16.5	**-1,195.5**
Total other comprehensive income	**1,759.8**	**51.7**	**1,572.7**	**-163.9**	**2.7**	**3,223.0**	**-22.1**	**3,200.9**

1 The figures for the previous year have been restated. A separate line item has been added to the statement of changes in equity under total comprehensive income to disclose basis adjustments in inventories in the cash flow hedge. This led to a reduction in total other comprehensive income for the previous year of €437.9 million (of which €622.9 million before tax and €–185.0 million in income tax).

Presentation of the tax effects relating to unrealized expenses and income in equity:

in € million[1]	2023			2022		
	Before tax	**Tax expenses/ income**	**After tax**	Before tax	Tax expenses/ income	After tax
Revaluation of pensions and similar obligations	**-534.3**	**151.4**	**-382.9**	2,388.9	-610.0	1,778.9
Currency translation differences	**-28.8**	**2.5**	**-26.3**	66.2	-2.8	63.4
Cash flow hedge	**41.9**	**-34.8**	**7.1**	1,461.9	-437.1	1,024.8
Financial assets measured at fair value in equity	**107.6**	**-32.0**	**75.6**	-287.7	85.4	-202.3
Entities accounted for using the equity method	**-2.0**	**0.0**	**-2.0**	2.7	0.0	2.7
Total other comprehensive income	**-415.6**	**87.1**	**-328.5**	**3,632.0**	**-964.5**	**2,667.5**

1 The figures for the previous year have been restated.

Presentation of the tax effects of reclassification adjustments included in the income statement and the cost of hedged items:

in € million[1]	2023			2022		
	Before tax	Tax expenses/ income	After tax	Before tax	Tax expenses/ income	After tax
Cash flow hedge	**-1,221.1**	**345.7**	**-875.4**	709.2	-214.2	495.0
Financial assets measured at fair value in equity	**92.9**	**-27.0**	**65.9**	55.2	-16.8	38.4
Total other comprehensive income	**-1,128.2**	**318.7**	**-809.5**	**764.4**	**-231.0**	**533.4**

1 The figures for the previous year have been restated. A separate line item has been added to the statement of changes in equity under total comprehensive income to disclose basis adjustments in inventories in the cash flow hedge. This led to a reduction in total other comprehensive income for the previous year of €437.9 million (of which €622.9 million before tax and €–185.0 million in income tax).

Non-controlling interests

Non-controlling interests are shares in Group companies held by third parties. They relate in particular to Energiedienst Holding AG, VNG AG, Stadtwerke Düsseldorf AG and Pražská energetika a.s., each with their subsidiaries, EnBW Hohe See GmbH & Co. KG, EnBW Albatros GmbH & Co. KG, EnBW Baltic 2 GmbH & Co. KG, EnBW WindInvest GmbH & Co. KG, EnBW SunInvest GmbH & Co. KG with its subsidiaries and, in the reporting year, EnBW He Dreiht GmbH & Co. KG and EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG with its subsidiary TransnetBW GmbH.

Financial information for subsidiaries where there is a significant influence without a controlling interest:

in € million				2023
	Capital share in % of non-controlling interests	Annual net profit from non-controlling interests	Dividends from non-controlling interests	Carrying amount of non-controlling interests
Energiedienst Holding AG	33.3	38.1	10.4	502.5
VNG AG	20.2	76.3	0.0	460.5
Stadtwerke Düsseldorf AG	45.1	87.0	54.4	430.9
Pražská energetika a.s.	30.2	67.9	21.6	255.1
EnBW Hohe See GmbH & Co. KG	49.9	37.5	108.2	909.4
EnBW Albatros GmbH & Co. KG	49.9	19.2	28.3	245.4
EnBW Baltic 2 GmbH & Co. KG	49.9	1.6	60.3	334.3
EnBW WindInvest GmbH & Co. KG	49.9	4.6	12.1	100.8
EnBW SunInvest GmbH & Co. KG	49.9	6.7	45.0	162.4
EnBW He Dreiht GmbH & Co. KG	49.9	1.4	0.0	469.1
EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG	49.9	0.0	0.0	2,587.6

Balance sheet data

in € million								2023
	Non-current assets	Current assets	Non-current liabilities	Of which non-current financial liabilities	Current liabilities	Of which current financial liabilities	Funds from operations (FFO)	Cash flow from operating activities
Energiedienst Holding AG	1,698.4	570.2	363.5	(31.1)	411.5	(13.1)	152.7	74.5
VNG AG	3,760.6	5,202.0	2,023.2	(425.8)	4,569.3	(489.9)	513.7	-828.3
Stadtwerke Düsseldorf AG	1,451.3	1,062.6	765.8	(407.5)	850.3	(12.4)	171.5	83.8
Pražská energetika a.s.	1,313.2	448.3	270.6	(20.2)	652.6	(107.1)	205.6	171.5
EnBW Hohe See GmbH & Co. KG	1,768.5	356.0	183.6	(0.0)	11.1	(0.0)	281.3	290.5
EnBW Albatros GmbH & Co. KG	502.7	83.5	69.5	(0.0)	1.9	(0.0)	64.0	72.5
EnBW Baltic 2 GmbH & Co. KG	682.4	170.7	117.6	(0.0)	11.2	(0.0)	137.9	162.7
EnBW WindInvest GmbH & Co. KG	175.6	24.2	34.0	(0.0)	2.7	(0.0)	19.7	24.8
EnBW SunInvest GmbH & Co. KG	303.5	42.9	25.9	(0.0)	2.5	(0.0)	26.7	51.6
EnBW He Dreiht GmbH & Co. KG	944.4	116.5	4.4	(0.0)	102.9	(0.0)	12.0	85.3
EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG	4,757.3	1,659.8	265.6	(0.0)	963.1	(0.0)	850.1	-1,017.2

Earnings data

in € million					2023
	Revenue	Adjusted EBITDA	Net profit	Other income	Total comprehensive income
Energiedienst Holding AG	1,840.8	163.7	114.3	9.9	124.2
VNG AG	10,400.7	519.8	378.3	1.6	379.9
Stadtwerke Düsseldorf AG	2,696.3	262.3	193.1	-112.8	80.3
Pražská energetika a.s.	2,146.8	272.0	225.1	-245.5	-20.4
EnBW Hohe See GmbH & Co. KG	341.2	310.8	75.2	0.0	75.2
EnBW Albatros GmbH & Co. KG	77.9	72.3	38.5	0.0	38.5
EnBW Baltic 2 GmbH & Co. KG	180.6	152.3	3.2	0.0	3.2
EnBW WindInvest GmbH & Co. KG	28.9	24.0	9.2	0.0	9.2
EnBW SunInvest GmbH & Co. KG	42.5	35.6	13.4	0.0	13.4
EnBW He Dreiht GmbH & Co. KG	0.0	0.0	9.9	0.0	9.9
EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG	3,674.9	649.6	733.1	-54.2	678.9

in € million				2022
	Capital share in % of non-controlling interests	Annual net profit/loss from non-controlling interests	Dividends from non-controlling interests	Carrying amount of non-controlling interests
Energiedienst Holding AG	33.3	49.6	9.6	476.3
VNG AG	20.2	-94.2	0.0	389.0
Stadtwerke Düsseldorf AG	45.1	99.3	45.4	449.2
Pražská energetika a.s.	30.2	36.2	20.6	306.4
EnBW Hohe See GmbH & Co. KG	49.9	-60.4	88.3	1,026.7
EnBW Albatros GmbH & Co. KG	49.9	12.3	23.1	268.8
EnBW Baltic 2 GmbH & Co. KG	49.9	62.0	0.0	426.7
EnBW WindInvest GmbH & Co. KG	49.9	13.7	0.7	113.5
EnBW SunInvest GmbH & Co. KG	49.9	7.5	0.0	205.5

Balance sheet data

in € million[1]								2022
	Non-current assets	Current assets	Non-current liabilities	Of which non-current financial liabilities	Current liabilities	Of which current financial liabilities	Funds from operations (FFO)	Cash flow from operating activities
Energiedienst Holding AG	1,621.1	461.8	381.7	(29.3)	308.5	(8.0)	99.4	-51.4
VNG AG	5,134.1	9,218.8	3,543.0	(427.8)	8,804.7	(6.8)	-153.1	142.0
Stadtwerke Düsseldorf AG	1,742.3	1,314.5	951.0	(418.2)	1,150.2	(12.4)	245.0	393.6
Pražská energetika a.s.	1,343.8	571.8	406.1	(128.5)	468.9	(2.8)	194.9	217.1
EnBW Hohe See GmbH & Co. KG	1,992.7	394.9	201.1	(0.0)	26.5	(0.0)	322.7	294.7
EnBW Albatros GmbH & Co. KG	534.4	104.5	72.3	(0.0)	5.7	(0.0)	85.0	77.9
EnBW Baltic 2 GmbH & Co. KG	829.3	220.7	126.6	(0.0)	18.2	(0.0)	183.5	161.6
EnBW WindInvest GmbH & Co. KG	190.4	42.5	35.7	(0.0)	8.6	(0.0)	42.9	34.9
EnBW SunInvest GmbH & Co. KG	324.6	134.3	30.1	(0.0)	21.3	(0.0)	107.9	-20.5

1 The figures for the previous year have been restated.

Earnings data

in € million	2022				
	Revenue	Adjusted EBITDA	Annual net profit/loss	Other income	Total comprehensive income
Energiedienst Holding AG	1,380.4	95.2	148.8	39.6	188.4
VNG AG	20,109.0	-161.9	-365.3	9.3	-356.0
Stadtwerke Düsseldorf AG	4,640.4	518.5	220.4	-85.1	135.3
Pražská energetika a.s.	1,824.2	223.5	120.0	9.7	129.7
EnBW Hohe See GmbH & Co. KG	401.3	355.6	-121.1	0.0	-121.1
EnBW Albatros GmbH & Co. KG	101.3	92.7	24.7	0.0	24.7
EnBW Baltic 2 GmbH & Co. KG	220.6	188.5	124.3	0.0	124.3
EnBW WindInvest GmbH & Co. KG	49.8	43.4	27.5	0.0	27.5
EnBW SunInvest GmbH & Co. KG	123.9	117.1	97.0	0.0	97.0

(21) Provisions

Provisions disclosed separately according to maturity in the balance sheet are combined in the notes to the financial statements.

in € million	31/12/2023			31/12/2022		
	Current	Non-current	Total	Current	Non-current	Total
Provisions for pensions and similar obligations	220.6	5,810.0	6,030.6	209.5	5,216.5	5,426.0
Provisions relating to nuclear power	580.1	4,188.3	4,768.4	629.6	3,984.7	4,614.3
Other provisions	1,728.0	1,412.6	3,140.6	2,507.7	1,282.6	3,790.3
Other dismantling obligations	(6.9)	(730.9)	(737.8)	(12.5)	(767.7)	(780.2)
Provisions for onerous contracts	(95.2)	(227.0)	(322.2)	(478.3)	(49.4)	(527.7)
Other electricity and gas provisions	(1,017.1)	(55.0)	(1,072.1)	(1,726.9)	(48.2)	(1,775.1)
Personnel provisions	(106.5)	(171.5)	(278.0)	(107.3)	(165.7)	(273.0)
Miscellaneous provisions	(502.3)	(228.2)	(730.5)	(182.7)	(251.6)	(434.3)
Total	**2,528.7**	**11,410.9**	**13,939.6**	**3,346.8**	**10,483.8**	**13,830.6**

Provisions for pensions and similar obligations

The provisions for pensions and similar obligations are recorded on the basis of actuarial valuations for the existing commitments for future and current post-employment benefits to current and former employees with a pension entitlement, as well as their surviving dependents. A substantial majority of the employees of the EnBW Group are entitled to pension payments from defined benefit pension plans. There are different post-employment provision schemes, which reflect how long the respective employees have served the company. In the case of employees who have already retired, the schemes in question are mainly final salary-based systems, in which the pension paid is calculated on the basis of the length of service, the rate of increase and the last pensionable income. As of 1 January 2005, this system was decoupled from the adjustments to the statutory pension insurance system as part of a reorganization. The amount of the provisions for pensions and similar obligations accounted for by these final salary-based systems as of 31 December 2023 was €5,164.9 million (previous year: €4,728.4 million). The bulk of the active employees are covered by ongoing salary-based schemes and/or a pension component system in the form of an average salary plan, in which the pension paid consists of annual pension components. For employees who joined the company from 1998 onwards, the pension obligation is based solely on a pension component system. The related provisions amounted to €713.3 million (previous year: €556.0 million). In addition, the employees are granted energy-price reductions for the period in which they receive their pensions. Other commitments amounted to €38.7 million (previous year: €35.6 million). These mainly comprise fixed-sum commitments.

The pensioners and those with prospective pension entitlements are distributed as follows among the different post-employment provision schemes:

Number of employees	31/12/2023		31/12/2022	
	Staff with prospective pension entitlements	Pensioners	Staff with prospective pension entitlements	Pensioners
Closed systems dependent on final salary	5,712	12,782	6,137	12,868
Pension component systems	14,423	746	13,309	665
Other commitments	920	633	874	643

The obligations are measured above all on the basis of the length of service and remuneration of the employees. In addition, the company pension scheme includes defined benefit obligations under multi-employer plans using the same measurement basis. The contributions payable to the supplemental pension plan are made as a certain percentage of the respective employee's remuneration that is subject to the supplemental pension plan.

The amount of provisions earmarked for the defined benefit obligations corresponds to the present value of the expected future obligations. The provisions are calculated using actuarial methods. Plan assets were created and will be used exclusively to cover pension obligations. They are deducted from the pension obligations. They exist in the form of contractual trust arrangements (CTA's) in the EnBW Group. A CTA is a legally structured trustee arrangement for the capital cover of direct pension obligations with separated and spun-off assets.

The objective of asset management in this area is to cover the non-current provisions for pensions and similar obligations, as well as the Group's nuclear provisions, within an economically sensible period by means of appropriate financial investments. The investment goals indicated are to be achieved with a minimum of risk. As of 31 December 2023, the dedicated financial assets for pension and nuclear provisions totaled approximately €6.2 billion (previous year: €6.0 billion) and were allocated to a total of nine asset classes. In addition to direct investments, financial investments were bundled within two master funds and the infrastructure funds consolidated in a SICAV (société d'investissement à capital variable, investment company with variable capital).

The following premises are taken into account when investments are made:

- Risk-optimized performance in line with the market is targeted.
- The risk was minimized by, for example, the implementation of an intervention line concept, the establishment of issuer limits and minimum ratings for bonds, adherence to a broad diversification of asset classes and further appropriate measures.
- The impact on the balance sheet and the income statement are to be minimized.
- Reducing costs and simplifying administration are also major priorities.
- Sustainability aspects are taken into account in the investment decisions.

The anticipated development of the cash flows of the post-employment provision schemes is as follows:

in € million	2023	2024-2028[1]	2029-2033[1]	2034-2038[1]	2039-2043[1]	2044-2048[1]	2049-2053[1]	2054-2058[1]
Closed systems dependent on final salary	211.5	229.3	262.0	272.6	255.4	225.7	183.3	137.6
Pension component systems	3.0	6.1	15.3	27.5	41.7	61.0	84.3	106.8
Other commitments	1.9	2.2	2.4	2.3	1.9	1.5	1.1	0.8
Total	**216.4**	**237.6**	**279.7**	**302.5**	**299.0**	**288.2**	**268.7**	**245.3**

1 Average values for five years.

The calculations are based on a duration of 15.0 years (previous year: 14.4 years).

Changes in the underlying parameters for calculating the provisions for pensions and similar obligations would have the following impact on their amounts:

in € million	Pension component systems	Closed pension systems dependent on final salary	Pension component systems	Closed pension systems dependent on final salary
Discount rate +/- 0.5%	-113.0/132.8	-358.7/400.8	-95.0/109.3	-358.5/400.9
Salary trend +/- 0.5%	15.4/-14.4	73.5/-66.7	19.9/-18.6	121.1/-110.7
Pension trend +/- 0.5%	7.4/-7.8	337.9/-302.3	5.1/-4.7	327.8/-306.7
Life expectancy +/- 1 year	23.3/-23.5	218.7/-208.2	24.0/-24.1	236.7/-229.9

The parameters for the sensitivity analysis were chosen from the point of view of materiality. Their impact on the defined benefit obligation (DBO) was determined separately in each case to prevent interactions. The parameter variation is based on past experience and the long-term planning premises applied within the Group.

The material parameters (average values) for calculating the defined benefit obligations at the Group's domestic companies are shown below:

in %	31/12/2023	31/12/2022
Actuarial interest rate	3.15	3.70
Future expected wage and salary increases	2.85	3.10
Future expected pension increase	2.20	2.35

The calculations are based on the 2018 G mortality tables devised by Prof. Dr. Klaus Heubeck.

The expenses for pensions and similar obligations are comprised as follows:

in € million	2023	2022
Current service cost	66.8	111.3
Past service costs	0.5	0.7
Interest income from plan assets	-27.4	-9.9
Interest costs	220.1	103.6
Recording in the income statement	**260.0**	**205.7**
Income from plan assets excluding interest income	-19.9	97.0
Actuarial gains (-)/losses (+) from changes in financial assumptions	571.3	-2,567.0
Actuarial gains (-)/losses (+) from experience-based restatements	-17.0	80.9
Recording in the statement of comprehensive income	**534.4**	**-2,389.1**
Total	**794.4**	**-2,183.4**

The development of the pension provisions, categorized by the present value of the defined benefit obligation and the fair value of the plan assets, is as follows:

in € million	31/12/2023	31/12/2022
Defined benefit obligation at the beginning of the financial year	6,140.4	8,642.3
Current service cost	66.8	111.3
Interest costs	220.1	103.6
Benefits paid	-297.7	-285.3
Actuarial gains (-)/losses (+)	554.3	-2,486.2
Actuarial gains (-)/losses (+) from changes in financial assumptions	(571.3)	(-2,567.1)
Actuarial gains (-)/losses (+) from experience-based restatements	(-17.0)	(80.9)
Past service costs	0.5	0.7
Changes in the consolidated companies and currency adjustments	15.0	-8.6
Reclassifications	31.7	62.6
Present value of the defined benefit obligation at the end of the financial year	**6,731.1**	**6,140.4**
Fair value of plan assets at the beginning of the financial year	820.4	991.3
Interest income	27.4	9.9
Appropriations to (+)/transfers from (-) plan assets[1]	12.4	6.7
Benefits paid	-81.2	-82.5
Income from plan assets excluding interest income	19.9	-97.0
Changes in the consolidated companies, currency adjustments and reclassifications	15.3	-8.0
Fair value of plan assets at the end of the financial year	**814.2**	**820.4**
Surplus cover from benefit entitlements	113.9	106.0
Provisions for pensions and similar obligations	**6,030.8**	**5,426.0**

1 Applies almost exclusively to the employer's contributions.

Payments into the plan assets in the amount of €12.0 million (previous year: €10.3 million) are planned in the subsequent period.

The plan assets consist of the following asset classes:

in %	31/12/2023	31/12/2022
Shares	13.9	15.3
Share-based investment funds	6.7	12.1
Fixed-income funds	54.3	51.3
Fixed-income securities	17.3	13.4
Land and buildings	4.5	3.5
Current financial assets	0.4	0.5
Other	2.9	3.9
	100.0	100.0

The plan assets are invested almost entirely within the EU. The plan assets do not include any shares of EnBW Group companies or any owner-occupied property. The investment strategy takes into consideration the maturity structure and volume of benefit obligations. The plan assets mainly have market price listings on active markets.

Multi-employer plans

Multi-employer plans, which are defined benefit plans, are accounted for as defined contribution plans because the information required to allocate the obligations and plan assets to the respective participating employer and the corresponding expenses is not provided by the supplemental pension plans. The expenses from defined benefit obligations via multi-employer plans amounted to €17.2 million (previous year: €11.7 million). Appropriations of a similar magnitude are anticipated for the subsequent year. Potential future increases in contributions from obligations that are not fully funded will not have a significant effect on the EnBW Group.

The employer's contributions to statutory pension insurance in 2023 amounted to €150.9 million (previous year: €135.4 million).

Provisions relating to nuclear power

The provisions relating to nuclear power as of 31 December 2023 were formed for the conditioning and proper packaging of radioactive waste, as well as for the decommissioning and dismantling of the nuclear power plants.

The evaluation of the provisions is carried out mainly on the basis of estimates, which for decommissioning and disposal costs are primarily derived from sector-specific appraisals. The provisions are recognized at the discounted settlement amount at the time they originated.

in € million	31/12/2023	31/12/2022
Remaining operation and post-operation	1,795.4	1,920.3
Dismantling including preparation	1,413.1	1,106.4
Treatment of residual material, packaging of radioactive waste	1,258.6	1,263.8
Other	301.3	323.9
Total	**4,768.4**	**4,614.4**

Provisions relating to nuclear power are reported in accordance with section 5 (2) of the Ordinance on the Transparency of Dismantling Provisions and are discounted at a risk-free interest rate of on average 2.70% (previous year: 2.13%). A corresponding rate of increase of costs of 2.5% (previous year: 2.6%) is applied. This results in a net interest (spread) of around 0.2% (previous year: -0.5%), which generally corresponds to the real interest rate. The change in this parameter led overall to a decrease in the nuclear power provisions of €116.5 million (previous year: decrease of €504.2 million).

A reduction or increase of 0.1 percentage points in the real interest rate would increase the present value of the provisions by €33.5 million (previous year: €31.6 million) or reduce it by €33.1 million (previous year: €31.3 million).

The nominal amount of the provisions (without taking into account the effects of the discount rate and rate of increase of costs) as of 31 December 2023 was €4,834.1 million (previous year: €4,368.9 million).

Due to a change in the assumptions concerning the future development of costs, the balance sheet item corresponding to provisions for power plants that are currently in operation was increased in the previous year by €52.9 million.

Decommissioning and dismantling costs are calculated on the basis of the scenario that assumes that the plants will be removed immediately. The provisions are partially offset by receivables amounting to €414.5 million (previous year: €372.9 million), which relate to dismantling obligations for nuclear power plants assumed by a contractual partner in connection with electricity supplies.

Other provisions

The other dismantling obligations mainly relate to wind and hydroelectric power plants, gas storage facilities and grids.

The provisions for onerous contracts concern future obligations from onerous procurement and sales agreements. The obligations mainly relate to the purchase of electricity and gas.

Other electricity and gas provisions primarily relate to obligations from emission allowances.

Personnel provisions primarily concern obligations from phased retirement plans, long-service awards and restructuring measures.

The rise in miscellaneous provisions was primarily due to additions to warranty provisions associated with our subsidiary SENEC.

The majority of other non-current provisions have a term of more than five years.

The provisions developed as follows in the reporting year:

Statement of changes in provisions

in € million	As of 01/01/2023	Increases	Reversals	Accretion	Changes recognized in equity	Changes in consolidated companies, currency adjustments, reclassifications	Utilization	As of 31/12/2023
Provisions relating to nuclear power[1]	4,614.6	734.1	172.4	104.4	0.0	-26.6	485.6	**4,768.5**
Other provisions	3,790.1	1,822.3	136.2	27.3	-25.6	-173.7	2,163.6	**3,140.6**
Other dismantling obligations	(780.2)	(0.9)	(41.0)	(12.3)	(-25.6)	(48.1)	(37.1)	**(737.8)**
Provisions for onerous contracts	(527.7)	(268.1)	(3.0)	(0.3)	(0.0)	(-180.6)	(290.3)	**(322.2)**
Other electricity and gas provisions	(1,774.9)	(987.5)	(59.2)	(8.1)	(0.0)	(0.2)	(1,639.4)	**(1,072.1)**
Personnel provisions	(273.1)	(142.9)	(6.0)	(5.4)	(0.0)	(-35.7)	(101.7)	**(278.0)**
Miscellaneous provisions	(434.2)	(422.9)	(27.0)	(1.2)	(0.0)	(-5.7)	(95.1)	**(730.5)**
Total	**8,404.7**	**2,556.4**	**308.6**	**131.7**	**-25.6**	**-200.3**	**2,649.2**	**7,909.1**

1 Utilization breaks down into decommissioning and dismantling totaling €399.5 million, disposal of spent fuel rods totaling €84.1 million and waste totaling €2.0 million.

(22) Deferred taxes

The deferred taxes on measurement differences compared to the tax accounts break down as follows:

in € million	31/12/2023		31/12/2022	
	Deferred tax assets[1]	Deferred tax liabilities[1]	Deferred tax assets[1]	Deferred tax liabilities[1]
Intangible assets	72.4	290.6	49.1	284.3
Property, plant and equipment	181.0	1,686.7	200.5	1,868.8
Financial assets	154.7	127.5	203.3	108.3
Other assets	188.8	19.4	233.2	22.5
Derivative financial instruments	19.2	361.3	1.7	835.4
Non-current assets	**616.1**	**2,485.5**	**687.8**	**3,119.3**
Inventories	235.6	32.7	134.9	18.5
Financial assets	3.1	17.0	9.4	85.4
Other assets	1,158.9	2,793.9	4,244.0	6,391.4
Current assets	**1,397.6**	**2,843.6**	**4,388.3**	**6,495.3**
Provisions	1,108.1	216.1	1,039.8	207.8
Liabilities and subsidies	557.6	332.6	955.7	227.8
Non-current liabilities	**1,665.7**	**548.7**	**1,995.5**	**435.6**
Provisions	134.5	46.6	232.1	37.1
Liabilities and subsidies	2,610.7	1,209.2	5,614.6	3,753.8
Current liabilities	**2,745.2**	**1,255.8**	**5,846.7**	**3,790.9**
Carryforwards of unused tax losses	96.1	0.0	44.1	0.0
Interest carryforwards	3.2	0.0	0.0	0.0
Deferred taxes before netting	**6,524.0**	**7,133.7**	**12,962.4**	**13,841.1**
Netting	-6,298.0	-6,298.0	-12,883.0	-12,883.0
Deferred taxes after netting	**226.0**	**835.6**	**79.4**	**958.1**

1 Deferred tax assets and liabilities prior to netting.

In the 2023 financial year, €6,298.0 million (previous year: €12,883.0 million) in deferred tax assets was netted against deferred tax liabilities. Deferred taxes are netted with each other per consolidated tax group or entity if the conditions to do so have been satisfied.

In the measurement differences compared to the tax accounts, a negative balance from deferred taxes resulting from consolidation of €2.2 million (previous year: €28.9 million) is taken into account.

In addition, deferred tax assets on measurement differences compared to the tax accounts contain €9.9 million (previous year: €68.9 million) in non-current financial assets, €499.1 million (previous year: €347.7 million) in non-current provisions and €250.7 million (previous year: €160.4 million) in current liabilities and subsidies that were offset against equity.

The deferred tax liabilities on measurement differences compared to the tax accounts contain no deferred tax liabilities with respect to non-current financial assets (as in the previous year) and €493.7 million (previous year: €703.9 million) with respect to current liabilities and subsidies that were offset against equity.

Deferred tax assets totaling €266.0 million (previous year: €126.9 million deferred tax liabilities) were offset directly against equity under other comprehensive income with no impact on profit or loss as of 31 December 2023.

The deferred tax assets contain an amount of €61.2 million (previous year: €95.2 million) that was formed in connection with risks related to the audit.

In order to evaluate the deferred tax assets from deductible temporary differences in assets and carryforwards of unused tax losses, a tax planning forecast was derived based on the company's multi-year plans and corporate strategy.

During this process, it was possible to prove with sufficient certainty that for EnBW and the main Group companies, there would be adequate taxable income available in the planning horizon used as the basis for the tax planning forecast for the full capitalization of deferred tax assets both from deductible temporary differences in assets and from carryforwards of unused tax losses.

As of 31 December 2023, a previous value adjustment and previous non-recognition of deferred tax assets from deductible temporary differences in assets and carryforwards of unused tax losses totaling €12.3 million (previous year: €6.6 million) were reversed.

Deferred tax assets from deductible temporary differences in assets and carryforwards of unused tax losses were only capitalized if there was sufficient certainty that there would be adequate taxable income available in the respective planning horizon. This meant that a total of €264.0 million (previous year: €0.0 million) in deferred tax assets from deductible temporary differences in assets and carryforwards of unused tax losses were adjusted or not recognized.

Carryforwards of unused tax losses are composed as follows:

in € million	31/12/2023		31/12/2022	
	Corporate income tax	Trade tax	Corporate income tax	Trade tax
Unlimited ability to carry forward the previously unused tax losses for which no deferred tax assets have been recognized in the balance sheet	765.5	726.0	380.8	412.3
Deferred taxes on the non-valued carryforwards of unused tax losses that would theoretically have to be formed	121.2	98.6	60.3	57.2
Unlimited ability to carry forward the existing unused tax losses for which deferred tax assets were formed [1]	275.5	353.3	141.3	129.8

1 Mainly concerns German companies.

Carryforwards of unused tax losses reduced the actual tax burden by €18.5 million (previous year: €136.6 million).

As of the reporting date, deferred tax assets of €24.3 million (previous year: €23.8 million) were recognized for Group companies that suffered losses in the reporting period or the previous period.

The deferred taxes on carryforwards of unused tax losses break down as follows:

in € million	31/12/2023	31/12/2022
Corporate income tax (or comparable foreign tax)	45.5	24.0
Trade tax	50.6	20.1
Total	**96.1**	**44.1**

The presentation of the development of deferred taxes on carryforwards of unused tax losses is as follows:

in € million	31/12/2023	31/12/2022
Opening balance	44.1	152.7
Utilization of tax losses	-18.5	-136.6
Write-down of tax loss carryforwards recognized in previous years (removal)	-15.0	0.0
Origination of tax losses (addition)	85.5	26.7
Change in consolidated companies	0.0	1.3
Closing balance	**96.1**	**44.1**

In the reporting year, there were deferred taxes on interest amounts carried forward of €3.2 million (previous year: €0.0 million).

No deferred tax liabilities were recognized on temporary differences of €18.4 million (previous year: €16.7 million) because any retained profits from subsidiaries based on the current planning will remain invested on a permanent basis or because it is not likely that these temporary differences will reverse in the foreseeable future.

(23) Liabilities and subsidies

Financial liabilities

Financial liabilities break down as of 31 December 2023 compared to the previous year as follows:

in € million[1]			31/12/2023			31/12/2022
	Current	Non-current	Total	Current	Non-current	Total
Subordinated bonds	499.5	1,991.7	2,491.2	0.0	2,488.7	2,488.7
Bonds	0.0	9,544.2	9,544.2	101.5	6,381.1	6,482.6
Commercial papers	0.0	0.0	0.0	712.5	0.0	712.5
Liabilities to banks	947.0	2,210.4	3,157.4	128.9	1,840.7	1,969.6
Other financial liabilities	17.7	1,257.3	1,275.0	21.1	1,216.9	1,238.0
Financial liabilities	**1,464.2**	**15,003.6**	**16,467.8**	**964.0**	**11,927.4**	**12,891.4**

1 Please refer to note (26) "Accounting for financial instruments" for more details on the credit and liquidity risk, fair values and undiscounted cash flows by year.

Of the non-current financial liabilities, €6,701.6 million (previous year: €5,907.2 million) have a term of between one year and five years, and €8,302.0 million (previous year: €6,020.2 million) have a term of more than five years.

Overview of the subordinated bonds

Issuer	Issue volume			Maturity
EnBW AG[1]	€500 million	€498.16 million	2.125%	31/08/2081
Green bond				
EnBW AG[2]	€500 million	€498.3 million	1.625%	05/08/2079
EnBW AG[3]	€500 million	€499.5 million	1.125%	05/11/2079
EnBW AG[4]	€500 million	€497.4 million	1.875%	29/06/2080
EnBW AG[5]	€500 million	€497.8 million	1.375%	31/08/2081
		€2,491.2 million		

1 Option for EnBW to redeem in the three-month period before 31 August 2032, then on every coupon date.
2 Option for EnBW to redeem in the three-month period before 5 August 2027, then on every coupon date.
3 Option for EnBW to redeem in the three-month period before 5 November 2024, then on every coupon date.
4 Option for EnBW to redeem in the three-month period before 29 June 2026, then on every coupon date.
5 Option for EnBW to redeem in the three-month period before 31 August 2028, then on every coupon date.

All outstanding subordinated bonds include early redemption rights for EnBW and are subordinate to all other financial liabilities, although they have equal ranking with each other. EnBW has the option of suspending interest payments. However, they must be subsequently paid under certain circumstances, for example, if EnBW pays dividends.

Overview of the senior bonds of EnBW

Issuer	Issue volume	Carrying amounts	Coupon	Maturity
Public bonds				
EnBW International Finance B.V.	€500 million	€498,5 million[1]	4.875%	16/01/2025
EnBW International Finance B.V.	€500 million	€499.0 million	0.625%	17/04/2025
EnBW International Finance B.V.	€500 million	€499.5 million	2.500%	04/06/2026
EnBW International Finance B.V.	CHF 165 million	€177.8 million	2.250%	15/06/2026
EnBW International Finance B.V.	€500 million	€499.0 million	0.125%	01/03/2028
EnBW International Finance B.V.	€500 million	€498.0 million	3.500%	24/07/2028
EnBW International Finance B.V.	CHF 245 million	€265.5 million	2.625%	15/06/2029
EnBW International Finance B.V.	€500 million	€498.6 million	0.250%	19/10/2030
EnBW International Finance B.V.	€500 million	€497.0 million	0.500%	01/03/2033
EnBW International Finance B.V.	€750 million	€745.6 million	4.000%	24/01/2035
EnBW International Finance B.V.	€600 million	€591.3 million	6.125%	07/07/2039
Green bond				
EnBW International Finance B.V.	€500 million	€497.8 million	3.625%	22/11/2026
EnBW International Finance B.V.	€500 million	€498.9 million	4.049%	22/11/2029
EnBW International Finance B.V.	€650 million	€647.2 million	3.850%	23/05/2030
EnBW International Finance B.V.	€500 million	€497.5 million	1.875%	31/10/2033
EnBW International Finance B.V.	€850 million	€845.3 million	4.300%	23/05/2034
Private placements				
EnBW International Finance B.V.	€100 million	€98.8 million	2.875%	13/06/2034
EnBW International Finance B.V.	JPY 20 billion	€127.9 million	5.460%[2]	16/12/2038
EnBW International Finance B.V.	€100 million	€99.3 million	3.080%	16/06/2039
EnBW International Finance B.V.	€75 million	€74.8 million	2.080%	21/01/2041
EnBW International Finance B.V.	€50 million	€49.6 million	2.900%	01/08/2044
		€8,706.9 millon[3]		

1 Adjusted for valuation effects from interest-induced hedging transactions.
2 After the swap into euros.
3 We also have a US private placement of bonds with a carrying amount of €837.2 million as of 31/12/2023.

In November 2023, EnBW International Finance B.V. issued two green bonds with a total volume of €1.5 billion and terms of six and a half and ten and a half years. They have been given coupons of 3.85% and 4.30%, respectively. In January 2023, EnBW International Finance B.V. had already issued two conventional bonds with a total volume of €1.25 billion and terms of five and a half and twelve years. They have been given coupons of 3.50% and 4.0%, respectively. In June 2023, EnBW International Finance B.V. issued two further bonds with a total volume of CHF 410 million and terms of three and six years. They have been given coupons of 2.25% and 2.625%, respectively.

Commercial paper program

Under the commercial paper program set up by EnBW and EnBW International Finance B.V. for short-term financing purposes, €0.0 million was unused as of 31 December 2023 (previous year: €712.5 million).

Liabilities to banks

Liabilities to banks increased in the 2023 financial year. This was primarily due to new loans taken out by EnBW and short-term money market loans taken out by subsidiaries. This was offset to some extent by scheduled repayments made by EnBW and its subsidiaries. The majority of the outstanding liabilities to banks are bilateral loan agreements.

The bank loan of €600 million agreed with the European Investment Bank in December 2022 to finance the He Dreiht offshore wind farm was fully drawn in 2023.

In May 2023, EnBW concluded a loan of €500 million with a bank consortium that is guaranteed by the credit agency EIFO. A total of €250 million of this loan was drawn in 2023 and also used to finance the EnBW He Dreiht offshore wind farm.

On 24 June 2020, EnBW concluded a sustainability-linked syndicated credit line with a bank consortium that has a volume of €1.5 billion. The bank consortium agreed the second extension option for an additional year in June 2021. The term for the syndicated credit line ends on 24 June 2027. The credit line remained undrawn as of 31 December 2023.

In addition, the Group had other committed credit lines of €3.9 billion (previous year: €4.6 billion), of which €0.6 billion (previous year: €0.2 billion) had been drawn as of 31 December 2023. The credit line of €660 million concluded with KfW by VNG in the previous year expired in 2023. Furthermore, there are uncommitted credit lines totaling around €1.7 billion (previous year: €1.3 billion) that can be drawn in agreement with our banks. As of 31 December 2023, €0.1 billion (previous year: €0.0 billion) of these credit lines had been drawn. The credit lines are not subject to any restrictions as regards their utilization.

Liabilities to banks are collateralized with real estate liens in the amount of €0.1 million (previous year: €0.1 million). Liabilities to banks to the amount of €184.9 million are collateralized with other types of securities (previous year: €218.4 million). These are mainly allocable to the Valeco Group.

Other financial liabilities

The item "other financial liabilities" primarily includes promissory notes, other loans and other contractual obligations.

Other liabilities and subsidies

Other liabilities and subsidies disclosed separately according to maturity in the balance sheet are combined in the notes to the financial statements.

in € million	31/12/2023	31/12/2022
Non-current liabilities	3,445.0	4,679.3
Current liabilities	14,158.9	24,358.0
Liabilities	**17,603.9**	**29,037.3**
Non-current subsidies	17.4	16.0
Current subsidies	1.3	1.2
Subsidies	**18.7**	**17.2**
Non-current liabilities and subsidies	3,462.4	4,695.3
Current liabilities and subsidies	14,160.2	24,359.2
Liabilities and subsidies	**17,622.6**	**29,054.5**

Other liabilities as of 31 December 2023 break down as follows compared to the previous year:

in € million[1]	31/12/2023			31/12/2022		
	Current	Non-current	Total	Current	Non-current	Total
Trade payables	5,049.9	1.1	5,051.0	8,443.3	0.6	8,443.9
of which liabilities to affiliated entities	(37.0)	(0.0)	(37.0)	(32.0)	(0.0)	(33.0)
of which liabilities to other investees and investors	(313.5)	(0.0)	(313.5)	(166.4)	(0.0)	(166.4)
of which liabilities to entities accounted for using the equity method	(108.4)	(0.0)	(108.4)	(158.6)	(0.0)	(158.6)
Other deferred income	165.2	239.8	405.0	280.8	227.1	507.9
Liabilities from derivatives	5,672.7	1,188.4	6,861.1	8,674.9	2,457.0	11,131.9
of which without hedges	(5,337.2)	(1,024.8)	(6,362.0)	(8,487.3)	(2,348.8)	(10,836.1)
of which cash flow hedge	(335.5)	(163.6)	(499.1)	(187.6)	(108.1)	(295.7)
Income tax liabilities	341.5	105.7	447.2	380.4	121.3	501.7
of which liabilities for audit risks	(0.7)	(105.7)	(106.4)	(0.3)	(121.3)	(121.6)
Contract liabilities	220.3	956.8	1,177.1	102.8	979.5	1,082.3
Miscellaneous liabilities	2,709.3	953.3	3,662.6	6,475.8	893.8	7,369.6
of which lease liabilities	(174.1)	(812.3)	(986.4)	(157.7)	(754.8)	(912.5)
of which from other taxes	(186.0)	(0.0)	(186.0)	(331.5)	(0.0)	(331.5)
of which relating to social security	(19.8)	(0.0)	(19.8)	(16.2)	(0.0)	(16.2)
Other liabilities	**14,158.9**	**3,445.1**	**17,604.0**	**24,358.0**	**4,679.3**	**29,037.3**

1 Please refer to note (26) "Accounting for financial instruments" for more details on the credit and liquidity risk, fair values and undiscounted cash flows by year.

Of the non-current other liabilities (excluding deferred income and contract liabilities), €1,650.7 million (previous year: €2,969.1 million) has a remaining term of between one year and five years, and €597.7 million (previous year: €503.6 million) has a remaining term of more than five years.

Trade payables include obligations for outstanding invoices amounting to €1,148.7 million (previous year: €908.1 million).

Contract liabilities primarily comprise advance payments received for construction cost subsidies and household connection costs. In addition, they include advance payments received for other contracts within the scope of application of IFRS 15.

Other liabilities include construction cost subsidies and other subsidies from private sources totaling €1,020.0 million (previous year: €991.8 million).

Miscellaneous liabilities mainly concern collateral for over-the-counter trading business (OTC margins) amounting to €876.1 million (previous year: €3,095.2 million), as well as variation margins of €243.5 million (previous year: €1,488.8 million), interest obligations from bonds amounting to €135.3 million (previous year: €88.1 million) and non-controlling interests in fully consolidated partnerships recorded as liabilities to the amount of €116.4 million (previous year: €111.8 million).

Subsidies break down as of 31 December 2023 compared to the previous year as follows:

in € million	31/12/2023	31/12/2022
Investment cost subsidies	9.5	8.8
Other subsidies from public authorities	9.2	8.4
Total	**18.7**	**17.2**

(24) Assets held for sale

Assets held for sale

in € million	31/12/2023	31/12/2022
Property, plant and equipment	0.0	7.8
Total	**0.0**	**7.8**

In the reporting year, there were no assets classified as held for sale.

In the previous year, the property, plant and equipment held for sale mainly referred to generation plants held for sale due to concessions that are set to expire. This is allocated to the Sustainable Generation Infrastructure segment in the segment reporting. In the previous year, there were no liabilities associated with assets classified as held for sale.

Other disclosures

(25) Earnings per share

Earnings per share is determined by dividing the profit or loss attributable to the shareholders of EnBW AG by the average number of shares outstanding. This indicator may be diluted by potential shares on account of share options or convertible bonds. As EnBW does not have any potential shares, the basic earnings per share is identical to the diluted earnings per share.

Earnings per share		2023	2022
Earnings from continuing operations	in € million	1,832.6	1,843.9
of which profit/loss shares attributable to the shareholders of EnBW AG	in € million	(1,537.6)	(1,738.0)
Group net profit	in € million	1,832.6	1,843.9
of which profit/loss shares attributable to the shareholders of EnBW AG	in € million	(1,537.6)	(1,738.0)
Number of shares outstanding (weighted average)	thousands	270,855	270,855
Earnings per share from continuing operations [1]	in €	5.68	6.42
Earnings per share from Group net profit [1]	in €	5.68	6.42
Dividend per share for the 2022 financial year of EnBW AG	in €	–	1.10
Proposed dividend per share for the EnBW AG 2023 financial year	in €	1.50	–

1 In relation to the profit/loss attributable to the shareholders of EnBW AG.

(26) Accounting for financial instruments

Financial instruments include primary financial instruments and derivatives. On the assets side, primary financial instruments consist of financial assets, trade receivables, other assets, and cash and cash equivalents. On the liabilities side, they consist of financial liabilities, trade payables and other liabilities.

Fair value and carrying amounts of financial instruments by measurement category

The table below shows the fair values and carrying amounts of the financial assets and financial liabilities contained in the individual balance sheet items. If not indicated separately, the fair value is measured recurrently.

31/12/2023		Hierarchy of input data					
in € million	Fair value	Level 1	Level 2	Level 3	Measured at amortized cost	Not in IFRS 7's field of application	Carrying amount
Financial assets	9,088.4	2,908.7	829.3	2,204.3	3,146.1	618.2	9,706.6
Measured at fair value through profit or loss	(3,921.3)	(1,228.0)	(489.0)	(2,204.3)			(3,921.3)
Measured at fair value in equity	(2,021.0)	(1,680.7)	(340.3)				(2,021.0)
Measured at amortized cost	(3,146.1)				(3,146.1)		(3,146.1)
Trade receivables	4,945.7				4,945.7		4,945.7
Other assets	9,701.1		7,480.4	9.6	2,211.1	1,351.0	11,052.1
Measured at fair value through profit or loss	(7,273.3)		(7,263.7)	(9.6)			(7,273.3)
Measured at amortized cost	(2,157.9)				(2,157.9)		(2,157.9)
Derivatives designated as hedging instruments	(216.7)		(216.7)				(216.7)
Lease receivables	(53.2)				(53.2)		(53.2)
Cash and cash equivalents	5,995.1				5,995.1		5,995.1
Total assets	**29,730.3**	**2,908.7**	**8,309.7**	**2,213.9**	**16,298.0**	**1,969.2**	**31,699.5**
Financial liabilities [1]	16,290.2				16,467.7		16,467.7
Trade payables	2,020.8				2,020.8	3,029.1	5,049.9
Other liabilities and subsidies	9,477.2		6,861.1		2,616.1	3,095.9	12,573.1
Held for trading	(6,362.0)		(6,362.0)				(6,362.0)
Measured at amortized cost	(1,629.7)				(1,629.7)		(1,629.7)
Derivatives designated as hedging instruments	(499.1)		(499.1)				(499.1)
Lease liabilities	(986.4)				(986.4)		(986.4)
Total liabilities	**27,788.2**	**0.0**	**6,861.1**	**0.0**	**21,104.6**	**6,125.0**	**34,090.7**

1 The fair value of bonds and of liabilities to banks is allocated to hierarchical Level 1 in the amount of €11,621.3 million and to hierarchical Level 2 in the amount of €4,688.9 million. A total of €299.0 million of the bonds are held in fair value hedging relationships.

31/12/2022			Hierarchy of input data				
in € million	Fair value	Level 1	Level 2	Level 3	Measured at amortized cost	Not in IFRS 7's field of application	Carrying amount
Financial assets	7,268.1	2,698.1	932.4	2,304.7	1,332.9	640.3	7,908.4
Measured at fair value through profit or loss	(4,160.6)	(1,251.7)	(604.2)	(2,304.7)			(4,160.6)
Measured at fair value in equity	(1,774.6)	(1,446.4)	(328.2)				(1,774.6)
Measured at amortized cost	(1,332.9)				(1,332.9)		(1,332.9)
Trade receivables [1]	5,920.7				5,920.7		5,920.7
Other assets	16,253.0	0.1	13,397.1		2,855.8	1,965.6	18,218.6
Measured at fair value through profit or loss	(12,892.6)		(12,892.6)				(12,892.6)
Measured at amortized cost	(2,823.5)				(2,823.5)		(2,823.5)
Derivatives designated as hedging instruments	(504.6)	(0.1)	(504.5)				(504.6)
Lease receivables	(32.3)				(32.3)		(32.3)
Cash and cash equivalents	6,475.6				6,475.6		6,475.6
Assets held for sale [2]						7.8	7.8
Total assets	**35,917.4**	**2,698.2**	**14,329.5**	**2,304.7**	**16,585.0**	**2,613.7**	**38,531.1**
Financial liabilities [3]	12,001.3				12,891.2		12,891.2
Trade payables	3,380.5				3,380.5	5,062.8	8,443.3
Other liabilities and subsidies	17,123.9		11,131.8		5,992.1	3,487.2	20,611.1
Held for trading	(10,836.1)		(10,836.1)				(10,836.1)
Measured at amortized cost	(5,079.6)				(5,079.6)		(5,079.6)
Derivatives designated as hedging instruments	(295.7)		(295.7)				(295.7)
Lease liabilities	(912.5)				(912.5)		(912.5)
Total liabilities	**32,505.7**	**0.0**	**11,131.8**	**0.0**	**22,263.8**	**8,550.0**	**41,945.6**

1 Due to the impact of the war between Russia and Ukraine, the amount of expected credit losses on trade receivables was increased moderately on the basis of internal forecasts.
2 This refers mainly to a non-recurring measurement of the fair value due to the application of IFRS 5.
3 The fair value of bonds and liabilities to banks must be allocated to hierarchical Level 1 (€7,820.5 million) and hierarchical Level 2 (€4,180.8 million), respectively. A total of €301.7 million of the bonds are involved in fair value hedging relationships.

The calculation of fair values is explained further in the section entitled accounting policies. The individual levels of the valuation hierarchy are as follows:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: Methods for which all input parameters that have a significant effect on the recorded fair value are observable, either directly or indirectly
- Level 3: Methods that use input parameters which have a material impact on the recorded fair value and are not based on observable market data

At the end of each reporting period it is determined whether there is any reason to reclassify between the levels of the valuation hierarchy. A reclassification is carried out if the valuation method for measuring fair value is changed and the input factors with significance for the valuation will result in allocation to a different level. Due to the fact that prices quoted by brokers are used, securities with a fair value of €6.4 million (previous year: €200.5 million) were reclassified from Level 1 to Level 2 and securities with a fair value of €29.9 million (previous year: €19.7 million) were reclassified from Level 2 to Level 1 in the 2023 financial year.

The fair value of the assets in the "measured at fair value through profit or loss" measurement category amounts to €11,194.6 million (previous year: €17,053.2 million), of which €1,228.0 million (previous year: €1,251.7 million) is allocated to the first hierarchical level, €7,752.7 million (previous year: €13,496.8 million) to the second hierarchical level and €2,213.9 million (previous year: €2,304.7 million) to the third hierarchical level. The assets in the "measured at fair value in equity" measurement category have a fair value of €2,021.0 million (previous year: €1,774.6 million), of which €1,680.7 million (previous year: €1,446.4 million) is allocated to the first hierarchical level and €340.3 million (previous year: €328.2 million) to the second hierarchical level. Assets in the "measured at amortized cost" measurement category amount to €16,298.0 million (previous year: €16,585.0 million).

The fair values of investments in private equity companies are provided by the respective investment companies. The fair value depends on the changes in market value of the respective asset. The most up-to-date fair value available is taken as the basis in each case.

The following table shows the development of the financial instruments to be accounted for at fair value in accordance with Level 3:

in € million	As of 01/01/2023	Changes in consolidated companies, currency adjustments, other	Changes recognized through profit or loss	Changes recognized in equity	Additions	Disposals	As of 31/12/2023
Financial assets	2,304.7	-1.4	-79.7	3.5	199.7	-213.0	2,213.8

Unrealized changes recognized through profit or loss for financial assets of €-79.7 million (previous year: €108.3 million) were recognized in the financial result and relate to financial instruments held in the financial year. In the financial year, there were realized changes recognized through profit or loss recognized in the investment result and financial result of €76.2 million (previous year: €238.8 million), of which €82.3 million (previous year: €238.4 million) is accounted for by financial instruments still held on the reporting date.

The premises for determining the price risks associated with the financial instruments measured at fair value in accordance with Level 3 were 1.0% for investments in real estate and infrastructure funds (previous year: 1.0%) and 10.0% for other financial instruments (previous year: 10.0%). In the risk scenario in question, the net profit/loss for the year would improve by €100.2 million (previous year: €102.9 million). A decrease of the same amount would have an opposite effect.

Financial liabilities as of 31 December 2023 include bonds with a fair value of €11,920.3 million (previous year: €8,834.7 million) and liabilities to banks with a fair value of €3,122.0 million (previous year: €1,928.6 million).

Disclosures – offsetting financial assets and financial liabilities

The derivative financial instruments are part of standard market netting agreements. Master netting agreements exist with our business partners that were created with banks, in particular, on the basis of ISDA (International Swaps and Derivatives Association) agreements. Transactions concluded as part of commodity transactions are generally subject to EFET (European Federation of Energy Traders) agreements. The netting agreements are included in the calculations of fair value.

The following table contains the financial instruments netted in the balance sheet and those which, irrespective of that, are subject to a legally enforceable netting agreement. These financial instruments are contained in the non-netted amounts. In addition, the non-netted amounts also contain collateral to be furnished in advance for on-exchange transactions.

31/12/2023				Non-netted amounts		
in € million	Gross amounts	Netting	Net amounts accounted for	Master netting agreement	Financial collateral received/ paid	Net amount
Trade receivables	4,078.4	-2,701.4	1,377.0	0.0	0.0	1,377.0
Other assets	25,109.9	-17,586.7	7,523.2	-421.4	-1,563.7	5,538.1
Measured at fair value through profit or loss	(23,890.8)	(-16,664.2)	(7,226.6)	(-374.9)	(-1,563.7)	(5,288.0)
Measured at amortized cost	(565.7)	(-418.1)	(147.6)	(0.0)	(0.0)	(147.6)
Derivatives designated as hedging instruments	(653.4)	(-504.4)	(149.0)	(-46.5)	(0.0)	(102.5)
Trade payables	2,965.6	-2,701.4	264.2	0.0	0.0	264.2
Other liabilities and subsidies	24,358.1	-17,586.7	6,771.4	-421.4	-392.8	5,957.2
Held for trading	(22,887.3)	(-16,525.3)	(6,362.0)	(-374.9)	(-390.2)	(5,596.9)
Measured at amortized cost	(856.8)	(-613.6)	(243.2)	(0.0)	(0.0)	(243.2)
Derivatives designated as hedging instruments	(614.0)	(-447.8)	(166.2)	(-46.5)	(-2.6)	(117.1)

31/12/2022				Non-netted amounts		
in € million	Gross amounts	Netting	Net amounts accounted for	Master netting agreement	Financial collateral received/ paid	Net amount
Trade receivables	9,005.2	-7,033.2	1,972.0	0.0	0.0	1,972.0
Other assets	76,730.0	-66,783.9	9,946.1	-464.8	-5,824.6	3,656.7
Measured at fair value through profit or loss [1]	(74,609.3)	(-65,009.9)	(9,599.4)	(-453.3)	(-5,824.6)	(3,321.5)
Measured at amortized cost	(612.5)	(-608.0)	(4.5)	(0.0)	(0.0)	(4.5)
Derivatives designated as hedging instruments	(1,508.2)	(-1,166.0)	(342.2)	(-11.5)	(0.0)	(330.7)
Trade payables	8,019.1	-7,033.2	985.9	0.0	0.0	985.9
Other liabilities and subsidies	75,531.9	-66,783.9	8,748.0	-464.8	-2,463.9	5,819.3
Held for trading [1]	(71,322.2)	(-64,269.4)	(7,052.8)	(-453.3)	(-2,460.2)	(4,139.3)
Measured at amortized cost	(2,987.9)	(-1,500.5)	(1,487.4)	(0.0)	(0.0)	(1,487.4)
Derivatives designated as hedging instruments	(1,221.8)	(-1,014.0)	(207.8)	(-11.5)	(-3.8)	(192.5)

1 The figures for the previous year have been restated for technical reasons. In addition, securities that must be classified as cash and cash equivalents are now disclosed under securities to improve the presentation.

The following net gains/losses were recognized in the income statement:

Net gains or losses by measurement category

in € million	2023	2022
Financial assets and liabilities measured at fair value through profit or loss	1,529.9	798.9
Financial assets measured at fair value in equity	-126.5	-39.3
Financial assets measured at amortized cost	-327.1	-270.2
Financial liabilities measured at amortized cost	-51.2	-56.6

Please refer to note (8) “Financial result” for information on the total interest income and expenses arising from the financial assets and liabilities measured at fair value in equity and at amortized cost.

The presentation of net gains and losses does not include derivatives that are designated as hedging instruments. Stand-alone derivatives are included in the “financial assets and liabilities measured at fair value through profit or loss” category.

The net gain posted in the “financial assets and liabilities measured at fair value through profit or loss” measurement category includes results from marking to market, dividends and the sale of financial instruments, as well as results related to interest and currency effects as in the previous year.

In the reporting year, the net loss in the “financial assets measured at fair value in equity” measurement category was mainly due to effects arising from the sale of financial instruments, currency effects and impairment losses/reversals of impairment losses as in the previous year.

The net loss in the “financial assets measured at amortized cost” measurement category was mainly due to loss allowances and negative currency effects as in the previous year.

In the reporting year, the net loss in the “financial liabilities measured at amortized cost” measurement category was mainly due to dividends and currency effects as in the previous year.

The loss allowances on the financial assets in the reporting year are presented under “Default risk” in this note.

In the 2023 financial year, results from changes in the market value of financial assets measured at fair value in equity were recognized in equity with a positive impact of €75.6 million (previous year: negative impact of €202.3 million). Of the changes in market values posted with no impact on income, €65.9 million (previous year: €47.8 million) was transferred with a negative impact on earnings to the income statement.

Derivative financial instruments and hedging

Derivatives: Both physical and financial options and forward transactions are entered into to hedge risks in the commodity area, while forward transactions are used almost exclusively in the foreign exchange area. In the area of financing, swap transactions are concluded to minimize risks.

All derivatives held for trading are accounted for as assets or liabilities. They are measured at fair value.

Changes in the fair value of derivatives which are neither intended solely for own use nor qualify as cash flow hedging transactions are recorded in the income statement.

Hedge accounting in accordance with IFRS 9 is applied in the finance area mainly for interest rate hedges for non-current liabilities. In the commodity area, fluctuations of future cash flows from planned procurement and sales transactions are hedged. The economic relationship between a hedged item and the hedging instrument is determined by the currency, amount or quantity and timing of the relevant cash flows, depending on the risk being hedged. Risks are hedged in their entirety and a 1:1 hedging relationship is used. In order to evaluate the expected effectiveness of the hedge, the hypothetical derivative method and the “dollar offset method” are used. Ineffectiveness in the hedging relationship may occur due to discounting effects.

Cash flow hedges have been entered into particularly in the commodity area to cover price risks from future sales and procurement transactions, to limit the currency risk from liabilities denominated in foreign currency and to limit the risk of interest rate fluctuation of floating-rate liabilities.

The change in the fair value of the hedging transactions used, particularly forward contracts and futures, is, insofar as they are effective, recorded directly in other comprehensive income until termination of the hedge. The ineffective portion of the gain or loss on the hedging instrument is immediately recognized in profit or loss.

Date of the reclassification of the result that was directly recognized in equity to the 2023 income statement

in € million	Fair value	2024	2025–2028	> 2028
Currency-related cash flow hedges	-82.5	-6.4	-31.4	-44.7
Commodity cash flow hedges	-168.3	-294.4	126.1	0.0
Interest-related cash flow hedges	14.7	5.5	2.2	7.0

Date of the reclassification of the result that was directly recognized in equity to the 2022 income statement

in € million	Fair value	2023	2024 – 2027	> 2027
Currency-related cash flow hedges	**-33.4**	-31.9	10.8	-12.3
Commodity cash flow hedges	**287.4**	139.3	166.8	-18.7
Interest-related cash flow hedges	**32.8**	6.4	14.0	12.4

As of 31 December 2023, unrealized gains from derivatives amounted to €745.1 million (previous year: €1,880.0 million). In the reporting period, the effective portion of the cash flow hedges was recognized directly in equity with a positive impact of €42.1 million (previous year: €1,461.7 million). From the ineffective portion of the cash flow hedges in the 2023 financial year, there was income of €4.2 million (previous year: €4.6 million expenses) as well as income from reclassifications from other comprehensive income in the amount of €1,221.1 million (previous year: €709.2 million expenses) to the income statement. The reclassifications were made to revenue (increase of €821.1 million, previous year: decrease of €1,378.6 million), cost of materials (increase of €499.7 million, previous year: decrease of €623.8 million), other operating income (increase of €928.9 million, previous year: €52.0 million) and the financial result (decrease of €29.2 million, previous year: €6.5 million). An amount of €44.1 million (previous year: €622.9 million) was reclassified from other comprehensive income to inventories. This led to an increase in acquisition costs in the reporting year and to a decrease in the previous year.

As of 31 December 2023, existing hedged items that are covered by cash flow hedges with terms of up to around 14 years (previous year: up to 15 years) are included in the area of foreign currencies. In the commodity area, the terms of planned hedged items are generally up to four years, as in the previous year.

For optimization purposes, hedging relationships are regularly redesignated as is customary in the industry.

Hedges of a net investment in a foreign operation are used to hedge foreign currency risks from investments with a foreign functional currency. As of 31 December 2023, the item "financial liabilities" contained bonds of US$148 million to hedge the foreign currency risk of the net investment in the joint venture in Turkey. It also contains bonds of GBP 168 million and CHF 100 million that are held to hedge the foreign currency risk of investments in joint ventures and subsidiaries. Gains and losses from the translation of bonds in foreign currencies are recognized under other comprehensive income and netted against any gains or losses from the currency translation at the foreign operation.

There is an economic relationship between the hedged item and the hedging instrument because there is a translation risk associated with the net investment that corresponds to the foreign currency risk associated with the respective bond. The underlying risk associated with the hedging instrument is identical to the hedged risk component. Therefore, the Group has defined a hedge ratio of 1 : 1 for this hedging relationship. A hedge will be ineffective if the value of the hedged item falls below the value of the bond in the foreign currency.

Fair value hedges are entered into above all to hedge fixed-income liabilities against market price risks. Interest rate swaps are used as hedging instruments. With a fair value hedge, both the hedged item and the hedging transaction are measured with respect to the hedged risk at fair value through profit or loss. The change in the fair value of hedging instruments of €2.7 million was recognized in the income statement with a negative impact on earnings in the reporting year (previous year: €31.6 million). For hedged liabilities, the fluctuation in market values arising from the hedged risk is also recognized in profit or loss. In the reporting year, fluctuations in market values totaling €2.7 million that resulted from the hedged items were measured through profit or loss with a negative impact on earnings (previous year: positive impact of €34.9 million).

Contracts that have been concluded to meet the company's expected usage requirements are not recorded in the balance sheet pursuant to the provisions of IFRS 9.

Regular way purchases or sales (spot purchases/sales) of primary financial instruments are generally recognized as of the settlement date at fair value taking into account the transaction costs. Derivative financial assets are recognized as of the trading date. Derivative and primary financial instruments are recognized in the balance sheet when EnBW becomes party to the contract.

Purchases and sales of fuels are made in euros or US dollars.

Counterparty risks are assessed taking into account the period for which the current replacement and selling risk has been calculated. Moreover, these risks are analyzed with reference to the current rating by the rating agencies Moody's and Standard & Poor's. An internal rating procedure is used for trading partners that do not have such an external rating.

The counterparty risk is based on replacement and selling risks resulting from the market value of the item in question with the individual trading partner as of the reporting date. Netting options agreed in master agreements concluded with the trading partner are also taken into account when determining the counterparty risk. If there is a netting agreement, positive and negative market values are netted for each trading partner. Otherwise, only positive market values are taken into consideration.

The following tables present the amounts that relate to items designated as hedging instruments. The nominal volume of the derivatives presented below has not been netted. It represents the sum of all purchase and sale amounts underlying the transactions. The amount of the nominal volume allows conclusions to be drawn about the extent to which derivatives have been used. However, it does not reflect the risk to the Group as the derivative transactions are counterbalanced by hedged items that have counter risks. Collateral is deposited or has been provided for derivatives that are traded on the stock exchange.

31/12/2023	Nominal amount of the hedging instrument	Carrying amount of the hedging instrument		Balance sheet items containing the hedging instrument	Change in the fair value for the reporting period
in € million		Assets	Liabilities		
Cash flow hedges	**11,324.5**	**206.4**	**499.1**		**-513.6**
Commodity price risks	8,931.6	179.2	403.7	Other assets/ Other liabilities	-447.5
Currency risk [1]	1,986.4	9.3	92.2	Other assets/ Other liabilities	-49.0
Interest rate risk [2]	406.5	17.9	3.2	Other liabilities	-17.1
Fair value hedges	**300.0**	**10.3**	**0.0**		**2.7**
Interest rate risk [3]	300.0	10.3	0.0	Other assets	2.7
Hedges of a net investment in a foreign operation [4]	**435.2**	**0.0**	**435.2**	**Financial liabilities**	**-2.6**

1 The hedging instruments have a term of up to 5 years (€1,858.5 million) and more than 5 years (€127.9 million).
2 The hedging instruments have a term of up to 5 years (€402.6 million) and more than 5 years (€3.9 million).
3 The hedging instruments have a term of up to 5 years.
4 The nominal volume of the hedging instruments in foreign currencies is US$148 million, GBP 168 million, and CHF 100 million, of which US$84.2 million and GBP 148.4 million have a term of more than 5 years.

31/12/2022	Nominal amount of the hedging instrument	Carrying amount of the hedging instrument		Balance sheet items containing the hedging instrument	Change in the fair value for the reporting period
in € million		Assets	Liabilities		
Cash flow hedges	**13,023.4**	**481.5**	**295.7**		**1,979.1**
Commodity price risks	9,897.7	415.9	229.4	Other assets/ Other liabilities	1,934.8
Currency risk [1]	2,558.9	32.1	65.6	Other assets/ Other liabilities	11.2
Interest rate risk [2]	566.8	33.5	0.7	Other liabilities	33.1
Fair value hedges	**308.9**	**23.1**	**0.0**		**-31.6**
Commodity price risks	8.9	5.0	0.0	Other assets	5.0
Interest rate risk [3]	300.0	18.1	0.0	Other assets	-36.6
Hedges of net investments in foreign operations [4]	**138.8**	**0.0**	**138.8**	**Financial liabilities**	**9.3**

1 The hedging instruments have a term of up to 5 years (€2,416.7 million) and more than 5 years (€142.2 million).
2 The hedging instruments have a term of up to 5 years (€432.8 million) and more than 5 years (€134.0 million).
3 The hedging instruments have a term of up to 5 years.
4 The hedging instruments have a nominal value of US$148 million, of which US$55.0 million has a term of up to 5 years and US$93.0 million a term of more than 5 years.

The following tables present the amounts that relate to items designated as hedged items:

31/12/2023	Carrying amount of the hedged item	Change in value of the hedged item that is contained in the carrying amount of the recognized transaction	Balance sheet items containing the hedged item	Change in the fair value for the reporting period	Cash flow hedge reserve
in € million	Liabilities	Liabilities			
Cash flow hedges [1]	**–**	**–**		**517.7**	**745.0**
Commodity price risks	–	–		449.1	743.4
Currency risk	–	–		51.5	-32.5
Interest rate risk	–	–		17.1	34.1
Fair value hedges	**304.3**	**4.3**		**-2.7**	**–**
Interest rate risk	304.3	4.3	Financial liabilities	-2.7	–
Hedges of net investments in foreign operations	**–**	**–**		**2.6**	**6.5**

1 The hedged items are expected transactions and fixed obligations.

31/12/2022	Carrying amount of the hedged item	Change in value of the hedged item that is contained in the carrying amount of the recognized transaction	Balance sheet items containing the 'hedged item	Change in the fair value for the reporting period	Cash flow hedge reserve
in € million	**Liabilities**	**Liabilities**			
Cash flow hedges [1]	**–**	**–**		**-1,961.9**	**1,880.1**
Commodity price risks	–	–		-1,914.5	1,843.5
Currency risk	–	–		-14.3	-6.5
Interest rate risk	–	–		-33.1	43.1
Fair value hedges	**305.7**	**1.7**		**29.9**	**–**
Commodity price risks	4.0		Inventories	-5.0	
Interest rate risk	301.7	1.7	Financial liabilities	34.9	–
Hedges of net investments in foreign operations	**–**	**–**		**-9.3**	**9.3**

1 The hedged items are expected transactions and fixed obligations.

In the reporting year, the amounts associated with items designated as hedging instruments were as follows:

2023	Hedging gains or losses in the reporting period recognized under other comprehensive income	Ineffectiveness of the hedging relationship recognized in profit or loss	Items on the statement of comprehensive income that contain the recognized ineffectiveness	Reclassification adjustments included in the income statement [1]	Items on the statement of comprehensive income affected by the reclassification
in € million					
Cash flow hedges	**42.1**	**4.2**		**1,221.1**	
Commodity price risks	118.3	-2.4	Other operating expenses	1,250.4	Cost of materials/ revenue/other operating expenses
Interest rate risk	-15.5	0.0		0.0	Financial result
Currency risk	-60.7	6.6	Other operating income	-29.3	Financial result
Hedges of a net investment in a foreign operation	**-2.6**				

1 Detailed information on the reclassifications with an effect on profit or loss can be found in the information on cash flow hedges.

2022	Hedging gains or losses in the reporting period recognized under other comprehensive income	Ineffectiveness of the hedging relationship recognized in profit or loss	Items on the statement of comprehensive income that contain the recognized ineffectiveness	Reclassification adjustments included in the income statement [1]	Items on the statement of comprehensive income affected by the reclassification
in € million					
Cash flow hedges	**1,390.2**	**-4.6**		**-232.4**	
Commodity price risks	1,300.0	1.7	Other operating income	-225.9	Cost of materials/ revenue/other operating expenses
Interest rate risk	26.9	0.0		0.2	Financial result
Currency risk	63.3	-6.3	Other operating expenses	-6.7	Financial result
Hedges of a net investment in a foreign operation	**9.3**				

1 Detailed information on the reclassifications with an effect on profit or loss can be found in the information on cash flow hedges.

Derivatives used for hedging purposes can be reconciled to other comprehensive income (cash flow hedges) as follows:

in € million[1]	31/12/2023	31/12/2022	Change
Derivatives used in cash flow hedges with a positive fair value	433.4	755.9	-322.5
Derivatives used in cash flow hedges with a negative fair value	669.6	469.3	200.3
	-236.2	286.6	-522.8
Deferred tax on change recognized directly in equity in derivatives used in cash flow hedges	-254.9	-552.4	297.5
Hedge ineffectiveness	-4.0	4.6	-8.6
Cascading effects	58.9	649.2	-590.3
Effects realized from hedging transactions[2]	912.3	965.8	-53.5
Non-controlling interests	87.7	-82.8	170.5
Cash flow hedge (recognized in equity)	563.8	1,271.0	-707.2

1 Before offsetting financial assets and financial liabilities according to IAS 32.
2 Of which €880.3 million (previous year: €900.6 million) will be reclassified to the income statement in the period 2024–2030 (previous year: 2024 – 2030).

The cascading effects concern the changes in market value of the futures that are part of hedges accumulated until the time of cascading.

In cascading, annual and quarterly futures are settled by other futures instead of in cash.

Counterparty risk Moody`s, S&P and/or internal rating

in € million	31/12/2023		31/12/2022	
	< 1 year	1 – 5 years	< 1 year	1 – 5 years
up to A1	418.5	73.6	870.5	293.7
up to A3	98.4	30.6	237.0	126.8
Baa1	366.7	378.4	1,014.0	725.0
up to Baa3	405.4	127.5	1,163.3	575.9
below Baa3	47.0	13.0	25.3	9.2
Total	1,336.0	623.1	3,310.1	1,730.6

Risk management system

As an energy supply company, EnBW is exposed to financial price risks in the currency, interest and commodity areas in the course of its operating activities, investments and financing transactions. In addition, there are credit and liquidity risks. It is company policy to eliminate or limit these risks through systematic risk management.

Exchange rate fluctuations between the euro and other currencies, fluctuation in interest rates on international money and capital markets, as well as fluctuating prices on the markets for electricity, coal, gas and emission allowances are the main price risks for EnBW. The hedging policy used to limit these risks is set forth by the Board of Management and is documented in intercompany guidelines. It also provides for the use of derivatives.

The derivatives used to hedge against financial risks are subject to the assessment criteria defined in the risk management guidelines. These include value-at-risk ratios and position limits and loss limits. The segregation of duties between trading and back-office processing and control is a further key element of our risk management.

The corresponding financial transactions are only concluded with counterparties with excellent credit ratings. Using suitable hedging instruments, it is possible to make use of market opportunities while hedging the risk position.

The risks arising from financial instruments as well as the methods used to assess and manage them have not changed significantly since the previous year.

Default risk

Please refer to note (12) "Leases" for the loss allowances for lease receivables.

A detailed description of the models can be found in the explanations of the "Impairment of financial assets" in the section "Significant accounting policies."

EnBW is exposed to default risks that result from counterparties not fulfilling contractual agreements. EnBW manages its default risks by generally demanding a high credit rating of its counterparties and limiting the default risk with counterparties. The credit ratings of counterparties are continually monitored by EnBW's system for managing credit ratings. Commodity and energy transactions are generally made under master agreements such as EFET, ISDA or IETA.

These master agreements are generally only entered into following careful scrutiny of the counterparty's creditworthiness. Exceptions to this business policy can be made only if it is in the justified interest of the company, e.g., in order to penetrate new markets. In terms of the customer structure, the receivables from individual counterparties are not large enough to give rise to a significant concentration of risk.

Financial investments are only made with counterparties and within the investment limits defined in the treasury guidelines. Compliance with these guidelines is constantly monitored by the internal control system (ICS).

The loss allowances for financial assets measured at fair value in equity and financial assets measured at amortized cost developed as follows:

in € million[1]	Financial assets measured at fair value in equity		Financial assets measured at fair value in equity		
	Carrying amount	Expected 12-month credit loss	Carrying amount	Expected 12-month credit loss	Expected credit loss over the term – impaired creditworthiness
As of 01/01/2022	**2,248.1**	**-9.4**	**7,395.3**	**-1.4**	**-35.7**
Net revaluation of the loss allowances	–	3.0	–	0.0	-111.8
Newly acquired financial assets	–	-1.8	–	-0.6	-0.4
Repaid financial assets	–	0.4	–	0.5	0.4
Reclassification in expected credit loss over the term – impaired creditworthiness	–	–	–	0.4	-4.7
As of 31/12/2022	**1,774.6**	**-7.8**	**8,608.2**	**-1.1**	**-152.2**
Net revaluation of the loss allowances	–	-0.3	–	-0.2	-94.5
Newly acquired financial assets	–	-4.0	–	-0.1	-0.1
Repaid financial assets	–	2.4	–	0.4	106.2
Reclassification in expected credit loss over the term – no impaired creditworthiness	–	–	–	-0.1	–
As of 31/12/2023	**2,021.0**	**-9.7**	**10,294.4**	**-1.1**	**-140.6**

1 The figures for the previous year have been restated.

The loss allowances for trade receivables developed as follows in the financial year:

Trade receivables	31/12/2023			31/12/2022		
in € million	Carrying amount	Loss allowance	Loss rate (weighted average)	Carrying amount	Loss allowance	Loss rate (weighted average)
Not past due	4,612.0	-42.2	0.9%	5,689.9	-33.0	0.6%
Past due	333.6	-420.3		230.8	-222.0	
Due within 3 months	(147.6)	(-38.1)	20.5%	(136.7)	(-31.9)	18.9%
Due in between 3 and 6 months	(46.3)	(-38.3)	45.3%	(39.4)	(-39.1)	49.8%
Due in between 6 months and 1 year	(53.2)	(-47.9)	47.4%	(30.0)	(-31.2)	51.0%
Due in more than 1 year	(86.6)	(-296.0)	77.4%	(24.6)	(-119.8)	82.9%

In the financial year, income from the recovery of trade receivables that had been written off was €8.4 million (previous year: €10.1 million). Expenses for trade receivables and other assets that had been written off stood at €38.0 million in the financial year (previous year restated: €34.6 million), of which €4.3 million (previous year: €5.6 million) are still subject to active enforcement proceedings.

The maximum default risk for financial assets (including derivatives with positive market value) is equivalent to the carrying amounts recognized in the balance sheet. As of the reporting date of 31 December 2023, the maximum default risk amounts to €29.7 billion (previous year: €35.9 billion). The maximum default risk for financial guarantees corresponds to the undiscounted cash flows for financial guarantees stated for the liquidity risk.

Liquidity risk

Liquidity risks arise for EnBW from the obligation to repay liabilities fully and punctually. The objective of EnBW's cash and liquidity management is to secure the company's solvency at all times.

Cash management determines any cash requirements and inflows on a central basis. By offsetting cash requirements and cash inflows, the number of banking transactions is reduced to a minimum. The netting is carried out by cash pooling. Cash management has implemented standardized processes and systems to manage bank accounts and internal clearing accounts, and to perform automated payment transactions.

For further details on financial liabilities, please refer to note (23) "Liabilities and subsidies."

For liquidity management purposes, a finance plan based on cash flows is prepared centrally. As they arise, finance needs are covered by suitable financial instruments as part of the liquidity management. In addition to liquidity that is available on a daily basis, EnBW maintains further liquidity reserves of €5.4 billion (previous year: €6.1 billion) which are available at short notice. The amount of liquidity reserves is based on strategic liquidity planning, taking into account defined worst-case parameters. The liquidity reserve is made up of contractually agreed, syndicated and free credit lines with various terms to maturity. In view of the liquidity available and existing credit lines, EnBW does not consider there to be any concentration of risk.

The tables below show future undiscounted cash flows from financial liabilities and derivative financial instruments that affect the future liquidity situation of the EnBW Group.

The analysis includes all contractual obligations that are disclosed in the balance sheet as of the reporting date 31 December 2023. Interest and redemption payments are taken into consideration for debt instruments issued and liabilities to banks.

The interest payments on fixed-income financial instruments are based on the contractually agreed interest rates. For financial instruments subject to floating interest, the interest rates last fixed prior to 31 December 2023 were used.

Foreign currency financial instruments are translated at the respective spot price as of 31 December 2023.

Where derivatives are concerned, positive or negative market values are generally included, provided they give rise to a net cash outflow. Undiscounted cash flows are determined on the basis of the following conditions:

- Swap transactions are only included in the liquidity analysis if they give rise to a net cash outflow.
- Forward exchange transactions are taken into account if they give rise to a cash outflow.
- In the case of forward transactions, all calls are taken into account. The future cash flows are equivalent to the quantities measured at the contractually agreed price.
- Futures transactions are not included in the liquidity analysis because they are settled by daily variation margins.

Undiscounted cash flows as of 31/12/2023

in € million	Total	2024	2025	2025	2026	Cash flows > 2027
Non-derivative financial liabilities						
Debt instruments issued	14,964.7	854.4	1,504.1	1,989.4	817.0	9,799.8
Liabilities to banks	3,997.3	1,004.4	418.7	485.2	421.8	1,667.2
Other financial liabilities	1,551.6	59.8	503.3	57.9	385.5	545.1
Trade payables	2,020.8	2,020.8				
Lease liabilities	1,183.7	193.4	143.9	121.9	103.1	621.4
Other financial obligations	1,247.7	1,100.2	2.5	28.0	8.4	108.5
Derivatives	27,421.2	17,244.2	6,459.6	2,059.7	1,091.0	566.8
Financial guarantees [1]	149.4	149.4				
Total	**52,536.4**	**22,626.6**	**9,032.1**	**4,742.0**	**2,826.8**	**13,308.8**

1 This includes guarantees to joint ventures of €32.7 million and to associates of €1.0 million.

Undiscounted cash flows as of 31/12/2022

in € million	Total	2023	2024	2025	2025	Cash flows > 2026
Non-derivative financial liabilities						
Debt instruments issued	11,078.0	339.7	735.9	1,393.2	1,692.2	6,917.0
Liabilities to banks	2,118.8	158.4	407.5	302.0	410.0	840.9
Other financial liabilities	1,397.1	53.0	32.1	496.7	28.0	787.2
Trade payables	3,550.1	3,550.1				
Lease liabilities	1,045.5	170.8	149.2	107.0	89.0	529.5
Other financial obligations	3,502.3	3,362.1	1.1	0.8	34.4	103.9
Derivatives	31,855.3	21,039.6	6,658.0	2,365.4	750.6	1,041.7
Financial guarantees [1]	248.7	248.7				
Total	**54,795.8**	**28,922.4**	**7,983.8**	**4,665.1**	**3,004.2**	**10,220.2**

1 This includes guarantees to joint ventures of €125.9 million and to associates of €5.0 million.

The liquidity risk for derivatives only refers to those contracts that give rise to a cash outflow. To better illustrate the liquidity risk from derivatives, the netting agreements concluded as part of our risk management activities are also taken into account when determining the liquidity risk. The cash outflows from derivatives are offset by cash inflows from corresponding sales transactions.

Market price risks

Market price risks can arise from foreign exchange and interest rate risks as well as from commodity and other price risks for shares, share-based investment funds, interest-bearing securities and investments in private equity companies. The price risks are reduced through the implementation of a comprehensive hedging concept and the associated closing of risk positions.

The main foreign currency risks of EnBW result from procurement and hedging of prices for its fuel requirements, gas and oil trading business and liabilities denominated in foreign currency. Other currency risks arise from shares, share-based investment funds, fixed-income securities and investments in private equity companies. The currency risk is hedged with the help of appropriate standardized financial instruments – in the reporting period, forward exchange contracts in particular – on the basis of continuously monitored exchange rate forecasts. Foreign exchange risks are hedged centrally. EnBW principally has exposure to currency risks from US dollars and Swiss francs. The deviation used to derive information on the currency sensitivity is determined on the basis of an annual analysis of the average deviation in the exchange rates.

The net assets tied up at foreign Group entities outside the eurozone, and their related translation risks, are hedged against exchange rate fluctuations only in exceptional cases.

The effects of changes in exchange rates on the net profit/loss for the year and on equity are analyzed below. The analysis was made assuming that all other parameters, such as interest rates, remain unchanged. The analysis includes financial instruments of €3,405.0 million (previous year: €5,058.3 million) whose exchange rate exposure might affect equity or the net profit/loss for the year. The information presented in the table shows only the effects on the net profit/loss for the year and on equity in the case of an increase in the exchange rates, a reduction of the same amount would have the opposite effect.

These mainly comprise investments in securities (bonds, shares), private equity investments, hedging instruments from cash flow hedges, stand-alone derivatives, and receivables and liabilities denominated in foreign currency.

Currency risk

in € million			31/12/2023	31/12/2022
Euros against all currencies	Appreciation (previous year: appreciation)	Profit for the year	-83.6	-240.4
	Appreciation (previous year: appreciation)	Equity	-22.2	-103.7
of which euro/US dollar	+5% (previous year: +10%)	Profit for the year	(-89.5)	(-248.3)
	-5% (previous year: -10%)	Equity	(-22.2)	(-103.7)
of which euro/Swiss franc	-5% (previous year: -6%)	Profit for the year	(-7.6)	(-6.1)

EnBW uses a multitude of interest-sensitive financial instruments in order to meet the requirements of operational and strategic liquidity management. Interest rate risks only stem from floating-rate instruments.

Interest-induced changes in the market value of interest-bearing securities in the “measured at fair value through profit or loss” and “measured at fair value in equity” measurement categories are presented under other price risks for shares, share-based investment funds, interest-bearing securities and investments in private equity companies.

On the assets side, there is interest exposure from bank balances and on the liabilities side from floating-rate liabilities to banks. In addition, there are interest rate risks from derivatives in the form of swap transactions. EnBW mainly has interest rate risks in the eurozone. The analysis includes financial assets of €5,309.3 million (previous year: €5,215.6 million) and financial liabilities of €2,266.8 million (previous year: €2,259.6 million), whose interest rate exposure might affect equity or the net profit/loss for the year.

The effects of changes in interest rates on the net profit/loss for the year and on equity on the reporting date are analyzed below. The situation on the reporting date for the period is decisive for the quantitative information; the effects for one year on the current reporting period are presented. The analysis was made assuming that all other parameters, such as exchange rates, remain unchanged. The analysis includes only financial instruments whose interest rate exposure might affect equity or the net profit/loss for the year. For analysis purposes, the average change in yield over the last ten years was used.

Interest rate risk

in € million		31/12/2023	31/12/2022
Increase in interest rate +40 basis points (previous year: +50 basis points)	Profit for the year	12.2	14.7
of which cash at banks with a floating interest rate	Profit for the year	(19.5)	(24.4)
of which floating-rate securities	Profit for the year	(1.8)	(1.6)
of which interest rate derivatives	Profit for the year	(-1.2)	(-1.5)
of which primary financial debt with a floating interest rate	Profit for the year	(-7.9)	(-9.8)
Decrease in interest rate -40 basis points (previous year: -50 basis points)	Profit for the year	-12.2	-14.7
of which cash at banks with a floating interest rate	Profit for the year	(-19.5)	(-24.4)
of which floating-rate securities	Profit for the year	(-1.8)	(-1.6)
of which interest rate derivatives	Profit for the year	(1.2)	(1.5)
of which primary financial debt with a floating interest rate	Profit for the year	(7.9)	(9.8)

In the context of our energy trading activities, EnBW enters into energy trading contracts for the purpose of price risk management, optimization of power stations, load equalization and optimization of margins. Trading for own account is only permitted within narrow, clearly defined boundaries.

The price risks mostly arise from the procurement and sale of electricity, the procurement of coal, gas and oil as fuels, and the procurement of emission allowances. Furthermore, EnBW is exposed to price risks from speculative items entered into in own-account trading. The price risks are hedged using appropriate financial instruments on the basis of continuously monitored forecasts of market prices. The hedging instruments used in the reporting period were forwards, futures, swaps and options.

The sensitivity of the measurement of derivatives to the price of electricity, coal, oil, gas and emission allowances is analyzed below. The analysis was made assuming that all other parameters remain unchanged. It includes only derivatives whose changes in market value affect equity or the net profit/loss for the year. These are derivatives that are accounted for as stand-alone derivatives as well as derivatives used as hedging instruments in cash flow hedges. For all commodities, typical volatilities were determined and rounded on the basis of the front year. These volatilities give the percentage rate by which the market price is shifted on the evaluation date. For all commodities, the resulting changes in market prices are multiplied by the sensitivities and aggregated for each commodity.

The analysis does not include any derivatives that are intended for the purpose of receipt or delivery of a non-financial item in accordance with the entity's expected purchase, sale or usage requirements (own use), and hence are not required to be accounted for in accordance with IFRS 9. Our generation and distribution positions are not included in the analysis either.

The sensitivities presented below therefore do not represent the actual economic risks to which the EnBW Group is exposed but rather serve solely to satisfy the disclosure requirements of IFRS 7.

The information presented in the table shows only the negative effects on the net profit/loss for the year and on equity for the given change in prices. An opposite change in prices would have positive effects of the same amount on the net profit/loss for the year and on equity.

Price risks

in € million			31/12/2023	31/12/2022
Electricity	-50% (previous year: +80%)	Profit for the year	-176.5	-924.4
	+50% (previous year: +80%)	Equity	-725.6	-1,750.9
Coal	+50% (previous year: +90%)	Profit for the year	-98.6	-809.3
	-50% (previous year: -90%)	Equity	-102.9	-855.5
Oil	-20% (previous year: -30%)	Profit for the year	-27.4	-24.6
	-20% (previous year: -30%)	Equity	-2.6	-4.5
Gas	-55% (previous year: +90%)	Profit for the year	-418.4	-34.8
	-55% (previous year: -90%)	Equity	-223.3	-530.7
Emission allowances	+30% (previous year: -50%)	Profit for the year	-372.3	-314.0
	-30% (previous year: -50%)	Equity	-963.1	-1,373.3

EnBW has investments in shares, share-based investment funds, fixed-income securities and investments in private equity companies that pose price risks for the company, which include, among other things, currency risk. When selecting securities, the company always attaches particular importance to high marketability and a good credit rating. As of the reporting date of 31 December 2023, shares, share-based investment funds, fixed-income securities and investments in private equity companies totaling €5,313.5 million (previous year: €5,415.7 million) were exposed to market risk.

The effects of price risks from shares, share-based investment funds, interest-bearing securities and investments in private equity companies (real estate, infrastructure and private equity funds) on the net profit/loss for the year and on equity are analyzed below. The analysis was made assuming that all other parameters, such as interest, remain unchanged. The analysis includes financial instruments whose price risks might affect equity or the net profit/loss for the year. The analysis of the market price risk of shares, share-based investment funds and investments in private equity funds was carried out based on historical volatility. A standard deviation was assumed as a realistic scenario. The market risk of fixed-income securities was analyzed by modified duration. Taking into account the changes in interest rates assumed (see interest rate risk) in relation to the fair value of fixed-income securities, results are determined in absolute figures. The premises on which the sensitivity analysis is based are 10% for shares, share-based investment funds and investments in private equity funds (previous year: 10%) and 1% for interest-bearing securities and investments in real estate and infrastructure funds (previous year: 1%).

In the risk scenario in question, the net profit/loss for the year would improve by €151.3 million (previous year: €153.1 million). The hypothetical change in profit/loss for the year is primarily due to shares, share-based investment funds and investments in private equity companies. In the risk scenario in question, the equity would increase by €16.6 million (previous year: €15.2 million). Of the hypothetical change in equity, €16.6 million (previous year: €15.2 million) is accounted for by fixed-income securities. The information presented shows only the effects on the net profit/loss for the year and on equity in the case of an increase in the values of shares, share-based investment funds, interest-bearing securities and investments in private equity companies, a reduction of the same amount would have the opposite effect.

(27) Contingent liabilities and other financial commitments

The disclosures on contingent liabilities and other financial commitments relate to nominal values.

Contingent liabilities

After the amended German Atomic Power Act (AtG) and the amended Directive on the Coverage Provisions in the Nuclear Power Industry (AtDeckV) came into force on 27 April 2002, German nuclear power plant operators are required to provide evidence of coverage provision up to a maximum amount of €2.5 billion per case of damage for risks related to nuclear power. Of this provision, €255.6 million is covered by uniform third-party liability insurance. Nuklear Haftpflicht GbR now only provides solidarity coverage in respect of claims relating to officially prescribed evacuation measures ranging from €0.5 million to €15.0 million. In proportion to their shares in the nuclear power plants, Group companies have undertaken to provide the operating companies responsible for the nuclear power plants with sufficient liquidity to enable them to meet their obligations arising from their membership of Nuklear Haftpflicht GbR at any time.

In order to fulfill the subsequent coverage provision amounting to €2,244.4 million per case of damage, EnBW and the other parent companies of the German nuclear power station operators reached a solidarity agreement on 11 July, 27 July, 21 August and 28 August 2001, which was extended with agreements on 17 November, 29 November, 2 December and 6 December 2021, to provide a liable nuclear power station operator with sufficient funding – after exhausting its own possibilities and those of the Group parent companies – to meet its payment obligations in the event of a claim for damages. According to the agreement, EnBW AG has to bear a 17.796% share of the liability coverage, plus 5% costs to settle any claims for damages, for the period from 1 January 2022 until 31 December 2029 in accordance with Annex 2 of the solidarity agreement. Sufficient provisions have been made to ensure this liquidity and are taken into account in the liquidity plan.

Following the full ratification of the Paris Convention on Nuclear Liability, the German Atomic Power Act of 28 August 2008 and the Directive on the Coverage Provisions in the Nuclear Power Industry of 21 January 2022 were amended to update the liability legislation in Germany. In particular, the minimum coverage provisions for decommissioned power plants without fuel rods was increased to €70 million and two or more nuclear power plants with the same owner on one site can now be treated as a single power plant according to liability law. The minimum coverage provision for plants that handle radioactive residual material and radioactive waste was also increased to €70 million.

As a result of the reform of the liability legislation, the coverage provision for the "Neckarwestheim, Block I and Block II" nuclear power plant was set at €2.5 billion in the notice of assessment of 5 September 2022, the coverage provision for the "Philippsburg, Block 1 and Block 2" nuclear power plant was set at €80 million in the notice of assessment of 27 June 2023 and the coverage provision for the "Obrigheim" nuclear power plant (KWO) was set at €70 million in the notice of assessment of 18 January 2023. KWO has not been included in the above-mentioned solidarity agreement since 31 December 2018. In addition, the coverage provision for the residual material treatment plant at the Neckarwestheim site (RBZ-N) was set at €70 million in the notice of assessment of 27 July 2022 and the coverage provision for the residual material treatment plant at the Philippsburg site (RBZ-P) was set at €70 million in the notice of assessment of 28 July 2022.

In addition, there are other contingent liabilities at the EnBW Group amounting to €609.1 million (previous year: €421.5 million). This amount includes sureties of €338.1 million (previous year: €336.9 million). The sureties include commitments to joint ventures of €107.0 million (previous year: €50.8 million). The amount also includes €267.4 million (previous year: €57.4 million) for pending litigations where no provisions were made because the counterparty is unlikely to win the case. Furthermore, various court cases, investigations by authorities or proceedings and other claims are pending against EnBW. The chances of these being successful are, however, remote and they are therefore not reported under contingent liabilities.

Other financial commitments

The EnBW Group has long-term purchase commitments for natural gas including LNG and regasification, coal and other fossil fuels, as well as for electricity. The total volume of these commitments amounts to €26.3 billion (previous year: €33.3 billion), of which €7.5 billion (previous year: €13.4 billion) is due within one year. Long-term commitments include purchase obligations in the electricity sector to associates of €149.6 million (previous year: €232.0 million).

Miscellaneous other financial commitments break down as follows:

in € million[1]	31/12/2023		Of which due in		31/12/2022
		< 1 year	1–5 years	> 5 years	
Financial commitments from rent and lease agreements	385.0	52.5	202.9	129.6	261.9
Purchase commitments	1,477.5	1,049.1	403.0	25.4	2,008.7
Investment obligations for intangible assets	13.6	12.5	1.1	0.0	16.7
Investment obligations for property, plant and equipment	5,889.4	2,190.0	3,526.1	173.3	5,133.5
Financial commitment related to the acquisition of associates, affiliated entities, joint ventures and investments	1,394.4	538.9	839.4	16.1	1,552.9
Other financial commitments	601.1	239.6	216.8	144.7	341.2
Total	**9,761.0**	**4,082.6**	**5,189.3**	**489.1**	**9,314.9**

1 This includes commitments to joint ventures of €1,010.2 million (previous year: €1,039.0 million) and to associates of €156.7 million (previous year: €2.7 million).

Commitments to joint ventures primarily result from the regulations of the shareholder agreement that obligate shareholders to provide the necessary financial funds to finance the operating activities of the company according to their shareholding in the joint venture. These commitments are calculated based on underlying assumptions. Due to the uncertainty inherent in these estimates, the possibility of a significant adjustment to the amount of the commitments in the next financial year cannot be ruled out.

(28) Significant restrictions

As a result of regulatory and legal requirements, the ability of the Group to transfer assets within the Group is limited to some extent.

In accordance with the German Energy Industry Act (EnWG), independent transmission operators must possess the financial, technical, material and human resources required to operate the transmission grid. For this purpose, the independent transmission operators must be the owner, either directly or through shareholdings, of all of the assets required to operate the transmission grid. As of 31 December 2023, the EnBW Group held a total of €6,315.5 million (previous year: €5,080.0 million) in assets restricted due to these legal regulations.

(29) Audit fees

The fees of the Group auditor EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft, which are recorded as an expense, break down as follows:

in € million	2023	2022
Statutory audit[1]	7.4	4.5
Other attestation services	1.4	0.7
Tax advisory services	0.0	0.0
Other services	0.2	0.3
Total	**9.0**	**5.5**

1 Of which €1.5 million for audit services in 2022 that were billed in 2023.

EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft audited the annual and consolidated financial statements of EnBW AG and also audited the financial statements of the subsidiaries of EnBW AG. In addition, non-statutory attestation services were provided relating to financial information non-statutory audits of systems and functions of corporate management and monitoring. Other attestation services mainly comprised audits specific to the sector of the economy that are prescribed by law, attestation services relating to the risk management system, capital market transactions (comfort letters) and other legally prescribed, contractually agreed or voluntarily commissioned attestation services.

In addition, EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft advised EnBW AG on matters relating to the grids and also on other economic matters.

(30) Exemptions pursuant to section 264 (3) or section 264b HGB

The following German subsidiaries made use of some or all of the exemption provisions of section 264 (3) HGB or section 264b HGB in the 2023 financial year:

Exemptions pursuant to section 264 (3) HGB

- BroadNet Deutschland GmbH, Cologne
- EnBW Betriebs- und Servicegesellschaft mbH, Karlsruhe
- EnBW Central and Eastern Europe Holding GmbH, Stuttgart
- EnBW France GmbH, Stuttgart
- EnBW Netze BW Beteiligungsgesellschaft mbH, Stuttgart
- EnBW New Ventures GmbH, Karlsruhe
- EnBW Offshore 1 GmbH, Stuttgart
- EnBW Offshore 2 GmbH, Stuttgart
- EnBW Offshore 3 GmbH, Stuttgart
- EnBW Offshore 4 GmbH, Stuttgart
- EnBW Perspektiven GmbH, Karlsruhe
- EnBW REG Beteiligungsgesellschaft mbH, Stuttgart
- EnBW Renewables International GmbH, Stuttgart
- EnBW Rückbauservice GmbH, Stuttgart
- EnBW Smart Meter GmbH, Karlsruhe (formerly symbiotic services GmbH, Karlsruhe)
- EnBW Telekommunikation GmbH, Karlsruhe
- EnBW Urbane Infrastruktur GmbH, Karlsruhe
- EnPulse Ventures GmbH, Stuttgart
- Gesellschaft für nukleares Reststoffrecycling mbH, Neckarwestheim
- MSE Mobile Schlammentwässerungs GmbH, Karlsbad-Ittersbach
- Neckarwerke Stuttgart GmbH, Stuttgart
- Netze BW Wasser GmbH, Stuttgart
- NWS Finanzierung GmbH, Karlsruhe
- NWS REG Beteiligungsgesellschaft mbH, Stuttgart
- RBS wave GmbH, Stuttgart
- TPLUS GmbH, Karlsruhe
- u-plus Umweltservice GmbH, Karlsruhe
- Ventelo GmbH, Cologne

Exemptions pursuant to section 264b HGB

- Der neue Stöckach GmbH & Co. KG, Obrigheim
- EnBW City GmbH & Co. KG, Obrigheim
- EnBW He Dreiht GmbH & Co. KG, Biberach an der Riß, (formerly EnBW He Dreiht GmbH, Varel)
- EnBW mobility+ AG & Co. KG, Karlsruhe
- EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG, Karlsruhe
- Facilma Grundbesitzmanagement und -service GmbH & Co. Besitz KG, Obrigheim
- NWS Grundstücksmanagement GmbH & Co. KG, Obrigheim
- Plusnet Infrastruktur GmbH & Co. KG, Cologne

(31) Declaration of compliance with the German Corporate Governance Code

The Board of Management and Supervisory Board of EnBW Energie Baden-Württemberg AG issued the declaration of compliance with the German Corporate Governance Code required by section 161 AktG on 7 December 2023 and made it permanently available to shareholders on the Internet at www.enbw.com/declaration-of-compliance.

(32) Share deals and shareholdings of key management personnel

The company did not receive any notices in the 2023 financial year about transactions involving EnBW shares, EnBW bonds, emissions allowances or any associated financial instruments concerning persons in managerial positions or those persons closely related to them in accordance with article 19 (1) EU Market Abuse Regulation 596/2014 (MAR).

(33) Notes to the cash flow statement

For further explanations on the cash flow statement, please refer to the details given in the management report on the financial position of the EnBW Group.

The cash flow statement is split up into cash flows from operating, investing and financing activities.

Adjustment of the figures for the previous year

In the 2023 financial year, the following adjustments were made to the line items in the cash flow statement for purposes of clarification:

Description of line item before adjustment	Description of line item after adjustment
1. Operating activities	
Change in provisions	Change in provisions excluding obligations from emission allowances
Change in assets and liabilities from operating activities	Change in assets and liabilities from operating activities
Inventories	Net balance of inventories and obligations from emission allowances
Net balance of trade receivables and payables	Net balance of trade receivables and payables, services not yet invoiced and payments on account that have been made and received
2. Investing activities	
Cash paid for investments in other financial assets	Cash payments for securities, financial investments and other financial assets
Cash received from the sale of other financial assets	Cash received for securities, financial investments and other financial assets
Net foreign exchange difference	Net foreign exchange difference and other changes in cash and cash equivalents
Change in cash and cash equivalents due to risk provisions	

The netting of the changes in inventories with the changes in obligations from emission allowances within the item “Change in assets and liabilities from operating activities” is due to the fact that the emission allowances have already been used at the time of the emissions, even if these allowances have not yet been returned to the government or have not yet been acquired.

In addition, changes to the presentation of the cash flow statement in these financial statements led to a restatement of the figures for the 2022 financial year as follows:

in € million	2022 before adjustment	Change	2022 after adjustment
1. Operating activities			
Net balance of trade receivables and payables, services not yet invoiced and payments on account that have been made and received	(2,470.9)	(121.3)	(2,592.2)
Net balance of other assets and liabilities	(-1,071.0)	(-121.3)	(-1,192.3)
Cash flow from operating activities	**1,804.8**	**0.0**	**1,804.8**
2. Investing activities			
Cash payments for securities, financial investments and other financial assets	-2,450.5	-2,367.1	-4,817.6
Cash received for securities, financial investments and other financial assets	1,788.3	2,559.5	4,347.8
Change in securities and financial investments	192.4	-192.4	0.0
Cash flow from investing activities	**-2,734.9**	**0.0**	**-2,734.9**
3. Financing activities			
Increase in financial liabilities	12,898.1	5,002.3	17,900.4
Repayment of financial liabilities	-11,219.8	-5,002.3	-16,222.1
Cash flow from financing activities	**734.6**	**0.0**	**734.6**

Payments on account made and received, and contract assets and liabilities
From the 2023 reporting year onwards, the change in payments on account made and received, and in contract assets and liabilities is no longer reported in the change in the net balance of other assets and liabilities. For a more appropriate presentation, this change is now presented in the change in the net balance of trade receivables and payables. This change in presentation did not have any impact on either the change in assets and liabilities from operating activities overall or the cash flow from operating activities.

Cash payments and receipts from securities and other financial investments
Cash payments and receipts from securities and other financial investments that were disclosed net in the line item "Change in securities and financial investments" up to the reporting date of 31 December 2022 will be disclosed gross from the 2023 financial year onwards. There is no impact on the cash flow from investment activities as a result.

Cash receipts and payments relating to time deposits
The line items "Increase in financial liabilities" and "Repayment of financial liabilities" contained a net disclosure of the cash receipts and payments relating to time deposits up to the reporting date of 31 December 2022. The netting option according to IAS 7 is no longer being utilized for this as of the 2023 financial year in order to improve the presentation. This change had no impact on the cash flow from financing activities.

Additional disclosures
The balance of the cash flow statement represents the change in cash and cash equivalents during the 2023 financial year amounting to €-478.0 million (previous year: €-195.5 million). Cash and cash equivalents primarily relate to bank deposits, largely in the form of time and day-to-day deposits whose term from the acquisition date is less than three months and that are only subject to an immaterial risk of fluctuation in value. In the 2023 financial year, the cash flow from operating activities amounted to €899.7 million (previous year: €1,804.8 million).

The income tax paid in the reporting year totaled €906.7 million (previous year: €227.9 million).

Other non-cash-relevant expenses and income break down as follows:

in € million	2023	2022
Income from the reversal of construction cost subsidies	-76.0	-70.3
Impairment losses	276.6	122.4
Reversal of impairment losses on property, plant and equipment and intangible assets	-120.9	-1,499.2
Expense from the reversal of capitalized costs for obtaining contracts	17.0	15.3
Write-ups/write-downs on inventories and valuations of associated derivatives	600.9	-35.6
Result from the non-operating valuation effects from derivatives	-108.2	226.6
Other	37.3	-7.5
Total	**626.7**	**-1,248.3**

In the 2023 financial year, dividends of €671.3 million (previous year: €510.8 million) were declared, of which €373.4 million (previous year: €212.9 million) were to the benefit of third-party shareholders of Group companies. In the reporting year, €417.1 million (previous year: €399.4 million) of the declared dividends were distributed. €254.2 million (previous year: €111.4 million) of the dividends were offset against other dividends and €97.3 million (previous year: €134.0 million) of the dividends were offset against capital reductions in non-controlling interests with short-term receivables from foreign companies. The latter was due to advance payments made in the previous year as a result of contractual arrangements.

Capital expenditure on intangible assets and property, plant and equipment includes €198.8 million (previous year: €157.1 million) for intangible assets and €4,205.0 million (previous year: €2,613.6 million) for property, plant and equipment.

The acquisition of subsidiaries, entities accounted for using the equity method and interests in joint operations item includes €33.2 million (previous year: €0.0 million) for fully consolidated companies and €182.5 million (previous year: €110.4 million) for entities accounted for using the equity method. In the reporting period, cash payments mainly related to capital increases at entities accounted for using the equity method. They also included the total acquisition costs for insignificant associates.

In the comparative period, cash payments mainly related to the foundation of Morven Offshore Wind Holdings Ltd. and its subsidiary and the acquisition of shares in Smatrics GmbH & Co. KG. The purchase prices paid in cash for the acquisitions of entities was €16.4 million. The companies will be accounted for using the equity method in the consolidated financial statements. In addition, capital increases at entities accounted for using the equity method were also included in the previous year.

The considerations for the acquisition of fully consolidated companies and the acquired assets and liabilities break down as follows:

in € million	2023	2022
Fee	65.6	0.0
of which settled with cash and cash equivalents	(61.7)	(0.0)
of which not yet settled	(3.9)	(0.0)
Acquired cash and cash equivalents	28.5	0.0
Acquired assets and liabilities	26.6	0.0
Non-current assets	(97.2)	(0.0)
Current assets	(43.5)	(0.0)
Non-current liabilities	(82.1)	(0.0)
Current liabilities	(32.0)	(0.0)

In the reporting year, there were no cash receipts from the sale of fully consolidated companies, entities accounted for using the equity method or interests in joint operations included in the cash flow from investing activities (previous year: €24.3 million). In the comparative period, the cash receipts resulted mainly from the sale of Stadtwerke Hilden GmbH. The company was accounted for using the equity method in the consolidated financial statements. No cash and cash equivalents were relinquished as a result of the sale of shares. Capital reductions at entities accounted for using the equity method were also included in the previous year.

Net investment in the section “The EnBW Group” of the management report can be reconciled as follows:

in € million[1]	2023	2022
Cash flow from investing activities	-5,797.0	-2,734.9
Interest and dividends received	-529.8	-427.0
Net investments held as financial assets	-24.8	167.0
Net investment in securities, financial investments and other assets	1,664.0	76.1
Acquired/relinquished cash	-28.5	0.0
Cash received/paid from alterations of capital in non-controlling interests	606.7	0.2
Alterations of capital in non-controlling interests without cash outflows in the current period	-97.3	-134.0
Cash received/paid for changes in ownership interest without loss of control	1,487.4	301.7
Cash received/paid from participation models	-20.5	-16.8
Cash paid for net investments	**-2,739.8**	**-2,767.7**

1 The figures for the previous year have been restated due to the aggregation of line items.

The dedicated financial assets contribution of €104.9 million (previous year: €-92.2 million) is reported separately for the representation of the retained cash flow in the liquidity analysis in the section “The EnBW Group” of the management report.

The total amount of interest paid in the reporting period breaks down as follows:

in € million	2023	2022
Interest paid for investing activities (capitalized borrowing costs)	-83.2	-26.1
Interest paid for financing activities	-421.2	-318.8
Total amount of interest paid in the reporting period	**-504.4**	**-344.9**

Liabilities included in the cash flow from financing activities item in the cash flow statement can be reconciled as follows:

in € million	As of 01/01/2023	Cash-relevant changes		Non-cash-relevant changes						As of 31/12/2023
			of which interest payments	Changes in the group of consolidated companies	Currency effects	Market valuation	Addition to leases	Accrued interest	Other changes	
Subordinated bonds	2,488.7	0.0	0.0	0.0	0.0			0.0	2.5	2,491.2
Bonds	6,482.6	3,057.2	0.0	0.0	6.5	-2.7		0.0	0.4	9,544.0
Commercial papers	712.5	-712.5	0.0	0.0	0.0			0.0	0.0	0.0
Liabilities to banks	1,969.6	1,162.8	-32.5	3.5	-32.1			53.5	0.1	3,157.4
Other financial liabilities	1,238.0	51.3	0.0	-0.7	-0.1			0.7	-14.1	1,275.1
Financial liabilities	**12,891.4**	**3,558.8**	**-32.5**	**2.8**	**-25.7**	**-2.7**	**0.0**	**54.2**	**-11.1**	**16,467.7**
Other liabilities (interest on bonds)	88.2	-246.1	-246.1	0.0	0.0			293.4	0.0	135.5
Other liabilities (leases)	912.5	-199.0	-23.8	11.3	-1.5		247.5	0.0	15.5	986.3
Other liabilities (derivatives from financing activities)	13.1	-0.5	-0.5	0.0	-0.0	75.1		0.5	-13.3	74.8
Financial and other liabilities	**13,905.2**	**3,113.2**	**-302.9**	**14.1**	**-27.2**	**72.4**	**247.5**	**348.1**	**-8.9**	**17,664.3**
Other assets (derivatives from financing activities)	-62.2	17.3	17.3	0.0	0.4	15.4		-12.5	13.3	-28.2
Net liabilities from financing activities	**13,843.0**	**3,130.5**	**-285.6**	**14.1**	**-26.8**	**87.9**	**247.5**	**335.6**	**4.4**	**17,636.1**

in € million[1]	As of 01/01/2022	Cash-relevant changes		Non-cash-relevant changes						As of 31/12/2022
			of which interest payments	Changes in the group of consolidated companies	Currency effects	Market valuation	Addition to leases	Accrued interest	Other changes	
Subordinated bonds	3,475.6	-1,001.0	(0.0)	0.0	11.3			0.0	2.8	2,488.7
Bonds	4,685.2	1,858.4	(0.0)	0.0	-26.2			0.0	-34.8	6,482.6
Commercial papers	240.0	472.5	(0.0)	0.0	0.0			0.0	0.0	712.5
Liabilities to banks	2,067.3	-125.8	(-6.2)	2.6	10.8			14.4	0.3	1,969.6
Other financial liabilities	782.0	466.4	(-1.6)	0.0	1.6			1.0	-13.0	1,238.0
Financial liabilities	**11,250.1**	**1,670.5**	**(-7.8)**	**2.6**	**-2.5**	**0.0**	**0.0**	**15.4**	**-44.7**	**12,891.4**
Other liabilities (interest on bonds)	104.8	-176.9	(-176.9)	0.0	0.1			160.2	0.0	88.2
Other liabilities (leases)	884.8	-199.5	(-16.2)	0.4	2.0		210.3	0.0	14.4	912.5
Other liabilities (derivatives from financing activities)	64.5	-0.1	(-0.1)	0.0	0.0	-52.1		0.8	0.0	13.1
Financial and other liabilities	**12,304.2**	**1,294.0**	**(-201.0)**	**3.0**	**-0.4**	**-52.1**	**210.3**	**176.4**	**-30.3**	**13,905.2**
Other assets (derivatives from financing activities)	-66.0	18.1	(18.1)	0.0	-0.3	0.6		-14.7	0.0	-62.2
Net liabilities from financing activities	**12,238.2**	**1,312.0**	**(-183.0)**	**3.0**	**-0.6**	**-51.5**		**161.7**	**-30.3**	**13,843.0**

1 The figure for the previous year has been amended. The reason is the inclusion of derivatives from financing activities because these result in cash flows within the financing activities.

(34) Additional disclosures on capital management

For further explanations, please refer to the details given in the management report on the liquidity analysis of the EnBW Group.

Capital management at EnBW covers both the management of the net debt of €11,703.1 million (previous year: €10,847.0 million) and the management of liabilities and financial assets. Financial assets include non-current securities and loans, as well as current financial assets and cash and cash equivalents. On the liabilities side, capital management covers financial liabilities, as well as provisions for pensions and those relating to nuclear power.

EnBW has been managing its financial profile since 2021 using the key performance indicator debt repayment potential, which describes the retained cash flow in relation to net debt. A target value of at least 15% should enable the company to exploit growth opportunities while maintaining the creditworthiness of the company at the same time. This target value is based on the rating requirements and is reviewed on a regular basis to guarantee a solid investment-grade rating. EnBW ensures the timely coverage of the pension and nuclear obligations using an asset liability management model. EnBW uses this cash flow-based model to determine the anticipated effects over the next 30 years, based on appraisals of the pension provisions, as well as appraisals of the nuclear provisions. This model forms the basis for the management of financial assets that are held to cover the pension and nuclear obligations. It allows simulations of various alternative return and provision scenarios. In order to give proper consideration to the growing importance of climate risks, the fund managers at EnBW use sustainability principles, including the UN Principles for Responsible Investment (UN PRI), when selecting each individual investment. Climate risks especially are generally taken into account in the respective investment processes. At the same time, compliance with the regulations in the Sustainable Finance Disclosure Regulation (SFDR) when making investments will significantly increase transparency in the future.

The impact that the utilization of the pension and nuclear obligations may have on the operating business is limited to €300.0 million (plus an inflation supplement) a year using an ongoing contribution from the financial assets. If the provisions are fully covered by the financial assets, no further funds will be taken from operating cash flow as part of the model.

EnBW uses a rolling planning horizon of twelve months for managing liquidity. As part of operational liquidity management, EnBW compares the cumulative liquidity needs with the available sources of liquidity for different time periods (one day, seven days and three months), calculates the utilization rate in each case and uses this information to take the relevant financing decisions.

EnBW has a well-balanced maturity profile for its financial liabilities. The financial policy focuses on ensuring the solvency of the company, limiting financial risks and optimizing capital costs. As of 31 December 2023, the creditworthiness of EnBW was rated by the rating agencies Moody's and Standard & Poor's with Baa1 / stable and A- / stable, respectively.

(35) Segment reporting

2023 in € million	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Revenue					
External revenue	17,249.2	6,327.9	20,832.4	21.2	**44,430.7**
Internal revenue	1,137.1	1,757.5	8,117.2	-11,011.8	**0.0**
Total revenue	18,386.3	8,085.4	28,949.6	-10,990.6	**44,430.7**
Earnings indicators					
Adjusted EBITDA	239.5	1,772.0	4,647.6	-293.9	**6,365.2**
EBITDA	-80.3	1,872.3	3,991.4	-45.1	**5,738.3**
Adjusted EBIT	52.1	1,097.8	3,887.7	-358.7	**4,678.9**
EBIT	-316.8	1,192.2	2,576.1	-110.2	**3,341.3**
Income from reversals of impairment losses	0.0	0.0	120.9	0.0	**120.9**
Scheduled amortization and depreciation	-187.4	-674.2	-759.9	-64.8	**-1,686.3**
Impairment losses	-49.0	-5.9	-655.4	-0.4	**-710.7**
Net profit/loss from entities accounted for using the equity method	20.9	-30.6	-104.8	0.0	**-114.5**
Significant non-cash-relevant items	-125.0	49.8	306.3	-18.3	**212.8**
Assets and liabilities					
Capital employed	1,510.6	14,696.1	11,761.0	954.7	**28,922.4**
of which carrying amount of entities accounted for using the equity method	(129.3)	(397.7)	(866.4)	(0.0)	**(1,393.4)**
Capital expenditure on intangible assets and property, plant and equipment	357.7	2,568.0	1,435.3	42.8	**4,403.8**

2022 in € million[1]	Smart Infrastructure for Customers	System Critical Infrastructure	Sustainable Generation Infrastructure	Other/ Consolidation	Total
Revenue					
External revenue	18,754.5	6,697.4	30,543.2	7.5	56,002.6
Internal revenue	1,436.4	2,326.7	6,688.6	-10,451.6	0.0
Total revenue	20,190.9	9,024.1	37,231.8	-10,444.1	56,002.6
Earnings indicators					
Adjusted EBITDA	498.4	1,057.8	2,616.2	-205.3	3,967.1
EBITDA	221.0	1,169.6	3,087.7	-5.1	4,473.2
Adjusted EBIT	329.2	411.5	1,868.3	-257.1	2,351.9
EBIT	34.5	346.0	1,822.4	-61.7	2,141.2
Income from reversals of impairment losses	0.0	3.6	1,495.6	0.0	1,499.2
Scheduled amortization and depreciation	-169.2	-646.4	-747.9	-51.7	-1,615.2
Impairment losses	-17.3	-177.3	-517.4	-4.8	-716.8
Net profit/loss from entities accounted for using the equity method	8.7	3.8	11.4	0.0	23.9
Significant non-cash-relevant items	-106.9	-61.8	-309.3	-21.6	-499.6
Assets and liabilities					
Capital employed	1,863.9	12,427.0	10,217.9	469.6	24,978.4
of which carrying amount of entities accounted for using the equity method	(125.1)	(430.0)	(578.8)	(0.0)	(1,134.0)
Capital expenditure on intangible assets and property, plant and equipment	303.0	1,858.5	625.0	28.4	2,814.9

1 The figures for the previous year have been restated.

Detailed descriptions of the segments are given in the section "The EnBW Group" of the management report.

One of the Polish subsidiaries was restructured at the beginning of 2023 in order to comply with the Polish energy industry regulations. The composition of our segments has changed as a result. Please refer to the section "Revenue" for further information. In addition, there was a change in the presentation of valuation effects arising from certain hedging transactions which we use to hedge against price fluctuations for underlying assets such as our power plants. In contrast to the underlying assets, these hedging transactions have to be recognized at their fair value in accordance with IFRS 9. This results in temporary earnings effects that are reversed over the course of time. As the one-sided recognition of the market value of these hedging transactions does not properly reflect the economic reality, we now recognize these effects in the non-operating result starting from the 2023 financial year. The figures for the comparative periods have been restated in each case.

Our three segments encompass the following activities: The Smart Infrastructure for Customers segment comprises the sale of electricity and gas, the provision and expansion of quick-charging infrastructure and digital solutions for electromobility, activities in the telecommunications sector and other household-related solutions such as photovoltaics and home storage systems. The System Critical Infrastructure segment encompasses the value-added stages of transmission and distribution of electricity and gas. Our activities in this segment are designed to guarantee the security of supply and system stability. In addition, the provision of grid-related services and the supply of water is reported in the System Critical Infrastructure segment. The Sustainable Generation Infrastructure segment comprises the areas of Renewable Energies and Thermal Generation and Trading. Renewable Energies includes project development, project planning and the construction and operation of power plants based on renewable energies. Thermal Generation and Trading encompasses conventional electricity generation and the trading of electricity, gas, CO_2 allowances and fuels. In order to guarantee the security of supply, we maintain the power plants that have been transferred to the grid reserve. Thermal Generation and Trading also includes the storage of gas, district heating, waste management and the provision of energy services.

Internal and total revenue reported under "Other/Consolidation" mainly refers to consolidation effects. In particular, activities that cannot be attributed to the separately presented activities of the segments are disclosed in the other performance indicators here.

Segment reporting is based on internal reporting.

The segment figures have been determined in accordance with the accounting policies used in the consolidated financial statements.

Internal revenue shows sales between Group companies. Sales between the segments were made at market prices.

The significant non-cash-relevant items principally comprise expenses from additions to provisions and impairment losses, and income from the reversal of construction cost subsidies and household connection costs as well as deferred liabilities.

Adjusted EBITDA is one of the key internal performance indicators. Adjusted EBITDA is an earnings ratio before the investment and financial results, income taxes and amortization, adjusted for non-operating effects, which accurately reflects the development of results of operations. In the management report, the performance of the segments is explained with the aid of adjusted EBITDA.

Adjusted EBITDA can be reconciled to earnings before taxes (EBT) as follows:

in € million[1]	2023	2022
Adjusted EBITDA	6,365.2	3,967.1
Non-operating EBITDA	-626.9	506.1
of which expenses/income relating to nuclear power	(-675.6)	(-591.6)
of which income from the reversal of other provisions	(57.2)	(14.8)
of which result from disposals	(-0.3)	(3.8)
of which reversals of/additions to the provisions for onerous contracts relating to electricity and gas procurement agreements	(-176.2)	(393.8)
of which income from reversals of impairment losses	(120.9)	(1,499.1)
of which restructuring	(-47.8)	(-28.7)
of which valuation effects	(481.5)	(-908.1)
of which other non-operating result	(-386.6)	(123.0)
EBITDA	**5,738.3**	**4,473.2**
Amortization and depreciation	-2,397.0	-2,332.0
Earnings before interest and taxes (EBIT)	**3,341.3**	**2,141.2**
Investment result	-89.2	276.8
Financial result	-411.3	-22.6
Earnings before tax (EBT)	**2,840.8**	**2,395.4**

1 The figures for the previous year have been restated.

The components of non-operating EBITDA can be found in the income statement in income to the amount of €2,146.3 million (previous year restated: €2,588.5 million), as well as in expenses to the amount of €2,773.2 million (previous year restated: €2,082.4 million).

Capital employed, which we record as segment assets, comprises all assets from the operating business. Non-interest-bearing liabilities – such as trade payables – are deducted.

Capital employed is calculated as follows:

in € million	31/12/2023	31/12/2022
Intangible assets	3,166.2	3,218.2
Property, plant and equipment	25,429.8	22,705.3
Investment properties	38.3	40.2
Investments [1]	1,943.2	1,705.8
Loans	252.3	350.8
Inventories	2,804.0	3,835.7
Trade receivables [2]	4,487.3	5,491.2
Other assets [3]	11,009.6	20,293.1
of which income tax refund claims	(135.3)	(192.9)
of which other tax refund claims	(435.6)	(297.7)
of which derivatives	(7,488.2)	(13,393.0)
of which payments on account	(100.3)	(159.2)
of which prepaid expenses	(347.8)	(484.2)
of which miscellaneous assets	(2,646.3)	(5,918.7)
of which assets held for sale	(0.0)	(7.8)
of which components attributable to net debt	(-143.9)	(-160.4)
Other provisions	-3,140.6	-3,790.2
Trade payables and other liabilities [4]	-16,439.4	-27,975.8
of which trade payables	(-5,014.5)	(-8,411.9)
of which other deferred income	(-405.1)	(-507.8)
of which derivatives	(-6,859.4)	(-11,128.9)
of which income tax liabilities	(-447.2)	(-501.7)
of which contract liabilities	(-1,177.0)	(-1,082.3)
of which other liabilities	(-2,559.8)	(-6,343.8)
of which components attributable to net debt	(23.6)	(0.6)
Subsidies	-18.7	-17.2
Deferred taxes [5]	-609.6	-878.7
Capital employed	**28,922.4**	**24,978.4**
Average capital employed [6]	**27,310.0**	**22,690.5**

1 Including entities accounted for using the equity method, shares in affiliated entities and other investments allocable to operating activities.
2 Excluding affiliated entities, excluding receivables associated with nuclear provisions.
3 Excluding net profit from CTA, excluding valuation effects from interest-induced hedging transactions.
4 Excluding affiliated entities, excluding non-controlling interests in fully consolidated partnerships recognized as liabilities.
5 Deferred tax assets and liabilities netted.
6 Average calculation based on the relevant quarterly values for the reporting year and the year-end value for the previous year.

External revenue by region is determined by the location supplied. In the 2023 financial year, revenue of €5,890.4 million (previous year: €9,241.3 million) was generated in the Netherlands. The EnBW Group did not generate 10% or more of its external revenue with any one external customer as in the previous year.

External revenue by region

in € million	2023	2022
Germany	32,033.0	40,942.1
European currency zone excluding Germany	8,438.3	11,334.1
Rest of Europe	3,918.3	3,719.6
Rest of world	41.1	6.8
Total	**44,430.7**	**56,002.6**

External revenue by product

in € million	2023	2022
Electricity	19,682.3	23,050.1
Gas	21,895.4	30,104.4
Energy and environmental services/other	2,853.0	2,848.1
Total	**44,430.7**	**56,002.6**

Intangible assets and property, plant and equipment by region

in € million	31/12/2023	31/12/2022
Germany	25,720.9	23,215.4
European currency zone excluding Germany	853.4	685.6
Rest of Europe	2,021.6	2,022.5
Total	**28,596.0**	**25,923.5**

(36) Related parties (entities)

Other commitments are presented in note (27) "Contingent liabilities and other financial commitments."

Related parties include, above all, the Federal State of Baden-Württemberg and Zweckverband Oberschwäbische Elektrizitätswerke (OEW) as indirect major shareholders of EnBW AG. As of 31 December 2023, the Federal State of Baden-Württemberg and its wholly owned subsidiary NECKARPRI GmbH indirectly, and NECKARPRI-Beteiligungsgesellschaft mbH directly, held 46.75% of the shares in EnBW AG (unchanged). NECKARPRI-Beteiligungsgesellschaft mbH is a wholly owned subsidiary of NECKARPRI GmbH. OEW indirectly, and its wholly owned subsidiary OEW Energie-Beteiligungs GmbH (OEW GmbH) directly, held 46.75% of the shares in EnBW AG (also unchanged). This means that the related parties of EnBW AG include, in particular, the Federal State, NECKAR-PRI GmbH, OEW, OEW GmbH and entities controlled or jointly controlled by them, or over which they have a significant influence.

The transactions concluded with the Federal State and entities controlled or jointly controlled by it, or over which it has significant influence, essentially relate to supplying public entities such as universities, government authorities, zoos and clinics with electricity, gas and district heating. The revenue from these transactions was immaterial in the reporting period; most of the receivables had been settled as of 31 December 2023. All business transactions with the Federal State were based on customary market terms and conditions. There are no contingent liabilities or financial commitments to the Federal State.

Except for dividends paid, there are no business relations with OEW GmbH or NECKARPRI-Beteiligungsgesellschaft mbH.

Business relations with related parties, which, among others, result from supply and procurement agreements in the electricity and gas sectors, and took place at customary market terms and conditions, are as follows:

in € million	2023		2022	
	Joint ventures accounted for using the equity method	Associated companies accounted for using the equity method	Joint ventures accounted for using the equity method	Associated companies accounted for using the equity method
Income	181.5	271.7	196.6	614.0
Expenses	-134.8	-593.1	-140.4	-535.9
Assets	36.2	50.6	30.3	70.5
Liabilities	11.8	325.2	14.8	217.2

In business relations with joint ventures accounted for using the equity method, receivables and liabilities are almost exclusively due within one year.

The business relations with associated companies accounted for using the equity method, including with municipal entities (particularly municipal utilities), mainly exist in the course of ordinary business activity. The receivables and liabilities for the reporting period are predominantly due within one year. There are also provisions for long-term procurement agreements that are regularly adjusted to current market assessments. This is reflected in a decrease in income and an increase in liabilities in comparison to the previous year.

Further information on the CTAs can be found in note (21) "Provisions."

Related parties also include the CTAs that manage the plan assets for securing pension obligations.

(37) Related parties (individuals)

The EnBW Group has not entered into any significant transactions with individuals that are related parties.

Total remuneration according to IAS 24 for members of the Board of Management and Supervisory Board was €21.4 million (previous year: €17.8 million). This includes variable remuneration paid in the reporting year and the previous year for the year 2022 (previous year: 2021) for the Short Term Incentive (STI) of €2.9 million (previous year: €0.5 million) and the Long Term Incentive (LTI) of €0.6 million (previous year: €2.4 million) as a result of a resolution by the Supervisory Board on 22 March 2023 (previous year: 22 March 2022).

For members of the Board of Management serving in the reporting year, there were short-term benefits of €7.4 million (previous year: €7.0 million), long-term benefits for the LTI of €7.3 million (previous year: €4.4 million) and service and interest costs for defined benefit obligations of €1.6 million (previous year: €1.9 million).

In addition, there were accrued obligations for short-term benefits related to the STI and LTI of €6.9 million (STI previous year: €3.2 million STI), for long-term benefits for the LTI of €6.9 million (previous year: €4.4 million) and for defined benefit obligations of €7.7 million (previous year: €10.1 million).

Total remuneration for the Board of Management according to section 314 (1) no. 6 a HGB was €18.7 million (previous year: €12.5 million). This includes variable remuneration of €2.5 million paid to members of the Board of Management who have already stepped down in previous years for periods in which they were still serving members (previous year: €0.3 million). It also includes variable remuneration paid in the reporting year and the previous year for the year 2022 (previous year: 2021) of €3.5 million (previous year: €2.9 million) for serving members of the Board of Management and €2.0 million (previous year: €1.1 million) for members of the Board of Management who have already stepped down for periods in which they were still serving members. Total remuneration does not include any pension expenses.

Former members of the Board of Management and their surviving dependents were granted total remuneration according to section 314 (1) no. 6b HGB of €9.7 million (previous year: €7.6 million). A post-contractual non-competition agreement for a period of two years following the termination of the employment contract has been agreed with two members of the Board of Management who stepped down from the Board of Management in previous years. In accordance with the legal regulations, non-competition compensation in the amount of half of the last annual remuneration for the respective member of the Board of Management was agreed for the duration of the non-competition agreement. The Supervisory Board has the right to withdraw from each of the non-competition agreements at any time with a notice period of six months. If the Supervisory Board does not make use of this right, the member of the Board of Management who stepped down from the Board of Management in the previous year will receive total non-competition compensation of €3.2 million during the terms of their two-year non-competition agreements. The member of the Board of Management who stepped down from the Board of Management in 2021 received non-competition compensation of €1.7 million in the two-year period. In the reporting year, the non-competition compensation for the member of the Board of Management who stepped down from the Board of Management in the previous year was €1.6 million and the compensation for the member who stepped down in 2021 was €0.4 million.

Please refer to the explanations in section "Provisions for pensions and similar obligations" in note (21) "Provisions" for further information.

There are defined benefit obligations to former members of the Board of Management and their surviving dependents of €92.8 million (previous year: €87.7 million).

For the 2023 financial year, members of the Supervisory Board were granted total remuneration according to section 314 (1) no. 6 a HGB of €1.6 million (previous year: €1.6 million). In addition to fixed components, the short-term remuneration includes attendance fees and board remuneration from subsidiaries.

(38) Additional disclosures

List of shareholdings pursuant to section 313 (2) HGB as of 31 December 2023

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
Smart Infrastructure for Customers segment					
Fully consolidated companies					
1	Alectron AG, Ruswil/Switzerland	6	100.00	2,294	523
2	BroadNet Deutschland GmbH, Cologne	15	100.00	–	–
3	ED Liegenschaften GmbH, Rheinfelden	6	100.00	534	28
4	EnBW Contracting GmbH, Stuttgart	3, 6	100.00	75,618	–
5	EnBW Energy Factory GmbH, Stuttgart	3, 6	100.00	250	–
6	EnBW Smart Meter GmbH, Karlsruhe (formerly symbiotic services GmbH. Karlsruhe)	15	100.00	–	–
7	EnBW Telekommunikation GmbH, Karlsruhe	15	100.00	–	–
8	EnBW Vertriebsbeteiligungen GmbH, Stuttgart	6	100.00	14,190	444
9	ESD Energie Service Deutschland GmbH, Offenburg	6	100.00	11,172	1,539
10	eYello CZ k.s., Prague/Czech Republic	5, 13	100.00	289	1
11	fonial GmbH, Cologne	6	100.00	-5,068	-221
12	G.EN. Gaz Energia Sp. z o.o., Warsaw/Poland	6	100.00	6,323	2,647
13	GasVersorgung Süddeutschland GmbH, Stuttgart	3, 6	100.00	65,000	–
14	Gasversorgung Unterland GmbH, Heilbronn	3	100.00	7,225	–
15	goldgas GmbH, Eschborn	3, 6	100.00	7,312	–
16	goldgas GmbH, Vienna/Austria	6	100.00	8,573	3,513
17	HANDEN Sp. z o.o., Warsaw/Poland	6	100.00	121,686	15,624
18	HEV Hohenloher Energie Versorgung GmbH, Ilshofen	3, 6	100.00	10,219	–
19	Messerschmid Energiesysteme GmbH, Bonndorf	5	100.00	2,056	90
20	NaturEnergie+ Deutschland GmbH, Mühlacker		100.00	3,020	78
21	NatürlichEnergie EMH GmbH, Platten	6	100.00	8,015	4,052
22	Plusnet GmbH, Cologne	3, 6	100.00	55,194	–
23	Plusnet Infrastruktur GmbH & Co. KG, Cologne	15	100.00	–	–
24	PREservisní, s.r.o., Prague/Czech Republic	5	100.00	1,981	190
25	PREzakaznicka a.s., Prague/Czech Republic	5	100.00	1,852	1,182
26	SENEC GmbH, Leipzig	6	100.00	-437,430	-544,731
27	SENEC Italia s.r.l., Rome/Italy	6	100.00	6,186	-9,447
28	Studer Söhne Elektro AG, Visp/Switzerland	6	100.00	4,837	2,502
29	Studer Söhne Holding AG, Visp/Switzerland	6	100.00	3,947	25
30	tritec-winsun AG, Steg-Hohtenn/Switzerland	6	100.00	5,075	2,554
31	Ventelo GmbH, Cologne	15	100.00	–	–
32	VNG Austria GmbH, Gleisdorf/Austria	6	100.00	12,485	7,508
33	VNG Energie Czech s.r.o., Prague/Czech Republic	6	100.00	2,331	672
34	VNG-Erdgascommerz GmbH, Leipzig	3, 6	100.00	162,101	–
35	VOLTCOM spol. s r.o., Prague/Czech Republic	5	100.00	872	455
36	Yello Solar GmbH, Karlsruhe	6	100.00	-14,616	-1,296
37	Yello Strom GmbH, Cologne	3, 6	100.00	1,100	–
38	ZEAG Immobilien GmbH & Co. KG, Heilbronn	6	100.00	2,153	1,583
39	EnBW mobility+ AG & Co. KG, Karlsruhe	15	99.90	–	–
40	Erdgas Südwest GmbH, Karlsruhe	6	79.00	-398,164	-118,313
41	NetCom BW GmbH, Ellwangen	6	74.90	39,189	-15,513
42	Energieversum GmbH & Co. KG, Gütersloh	6	51.41	-7,430	-7,637
43	SMATRICS EnBW GmbH, Vienna/Austria	6	51.00	37,539	-1,773
44	BSH GmbH & Co. KG, Bad Königshofen i. Grabfeld	6	50.10	-12,797	8,324
45	Solarmeisterei GmbH, Schwielowsee	6	50.10	3,194	2,827
46	Pražská energetika a.s., Prague/Czech Republic	5, 12	41.40	695,809	155,116
Non-consolidated affiliated entities[18]					
47	010052 Telecom GmbH, Cologne	3, 5	100.00	25	–
48	010088 Telecom GmbH, Cologne	3, 5	100.00	25	–
49	010090 GmbH, Cologne	3, 5	100.00	156	–

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
50	01012 Telecom GmbH, Cologne	3, 5	100.00	27	–
51	01052 Communication GmbH, Cologne	3, 5	100.00	25	–
52	01098 Telecom GmbH, Cologne	3, 5	100.00	25	–
53	Broadnet Services GmbH, Cologne	3, 5	100.00	25	–
54	EnBW Contracting Service GmbH, Stuttgart	5	100.00	593	28
55	Energieversum Verwaltungs GmbH, Gütersloh	16	100.00	24	-1
56	F&Q Netzbetriebs GmbH & Co. KG, Cologne	5	100.00	1	0
57	GIBY GmbH, Leipzig	5	100.00	383	-469
58	mobility + Beteiligungs GmbH, Karlsruhe	5	100.00	36	5
59	NatürlichEnergie Projekte GmbH, Wittlich	5	100.00	23	1
60	NatürlichEnergie Swiss NES GmbH, Laufenburg/Switzerland	5	100.00	8	-1
61	Plusnet Verwaltungs GmbH, Cologne	5	100.00	31	1
62	Q-DSL home GmbH, Cologne	3, 5	100.00	1,293	–
63	Q-Süd Immobilien Verwaltungs GmbH, Heilbronn	5	100.00	34	5
64	SENEC Cloud s.r.l., Rome/Italy	5, 6	100.00	76	87
65	SENEC Fachpartner GmbH, Leipzig (formerly EnBW Omega 138. Verwaltungsgesellschaft mbH, Stuttgart)	5	100.00	25	0
66	SMATRICS EnBW Italia S.R.L., Bozen/Italy	11	100.00	–	–
67	T & Q Netzbetriebs GmbH & Co. KG, Cologne	5	100.00	120	26
68	VNG ViertelEnergie GmbH, Leipzig	3, 5	100.00	98	–
69	VNG-Erdgastankstellen GmbH, Leipzig	3, 5	100.00	25	–
70	ZEAG Immobilien Verwaltungsgesellschaft mbH, Heilbronn	5	100.00	33	2
71	effizienzcloud GmbH, Leipzig	5	74.99	31	-2
72	Elektrizitätswerk Weißenhorn AG, Weißenhorn	5	63.24	4,388	304
73	Glasfaser Gesellschaft Dinkelsbühl GmbH, Dinkelsbühl (formerly EnBW Omega 145. Verwaltungsgesellschaft mbH, Karlsruhe)	5	51.00	25	0
74	grünES GmbH, Esslingen am Neckar	5	51.00	100	56
75	Stromvertrieb Backnang Verwaltungs GmbH, Backnang	5	51.00	31	1
76	BSH Verwaltungs-GmbH, Bad Königshofen i. Grabfeld	5, 7	50.10	16	1
Entities accounted for using the equity method					
77	Fernwärme SBH AG, Grafenhausen	5	40.00	781	-60
78	SMATRICS GmbH & Co KG, Vienna/Austria	5	25.10	30,054	-4,192
79	MITGAS Mitteldeutsche Gasversorgung GmbH, Halle (Saale)	5	24.60	172,912	42,450
Investments[18]					
80	bmp greengas GmbH, Munich	5, 6	100.00	5,697	71,406
81	Senec Australia PTY Ltd. i.L., Sorrento/Australia	5	100.00	-3,144	-1,124
82	AutenSys GmbH, Karlsruhe	5	65.00	-57	-49
83	backnangstrom GmbH & Co. KG, Backnang	5	51.00	111	31
84	CleverShuttle Düsseldorf GmbH, Düsseldorf	5, 6	50.00	-2,761	-135
85	Energiewerker GmbH, Östringen	5	50.00	171	-54
86	my-e-car GmbH, Lörrach	5	50.00	127	-70
87	Regionah Energie GmbH, Munderkingen	5	50.00	-199	172
88	Rezident Park 9 s.r.o., Prague/Czech Republic	5	50.00	-14	-18
89	Einhorn Energie GmbH & Co. KG, Giengen an der Brenz	5	49.90	661	1,079
90	Einhorn Energie Verwaltungsgesellschaft mbH, Giengen an der Brenz	5	49.90	37	1
91	iQ-Gesellschaft für integrierte Quartierslösungen mbH, Ravensburg	5	49.90	1,280	-298
92	Stadtwerke Freiberg a.N. GmbH, Freiberg am Neckar	5	49.90	6,762	295
93	BEN Fleet Services GmbH i.L., Karlsruhe	5	49.51	1,044	-3,323
94	Gasversorgung Pforzheim Land GmbH, Pforzheim	5	49.00	14,400	689
95	Sautter PE GmbH, Ellhofen	5	49.00	59	-104
96	caplog-x GmbH, Leipzig	5	37.34	2,793	857
97	Visp Infra AG, Visp/Switzerland	5	35.00	6,270	1
98	IDR Infrastrukturdienste Raron AG, Raron/Switzerland	5	33.00	568	262
99	Gemeinschaft für Energieeffizienz GmbH, Düsseldorf	5	32.83	-639	-48
100	espot GmbH, Stuttgart	5	32.60	554	14

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
101	Tempus s.r.l., Torri di Quartesolo/Italy	5, 6	30.43	678	34
102	Energie 360 GmbH & Co. KG, Korbach	5, 6	30.00	1,296	1,245
103	Schön Verwaltungsgesellschaft mbH, Korbach	5	30.00	32	1
104	Sungrade Photovoltaik GmbH, Günzburg	5	30.00	700	332
105	E-Mobility Provider Austria GmbH, Vienna/Austria	5	25.10	36	3
106	ehoch7 GmbH, Schönaich	5	25.10	959	512
107	Energieagentur Heilbronn GmbH, Heilbronn	5	25.00	48	-133
108	Stadt- und Überlandwerke GmbH Luckau-Lübbenau, Luckau	5	23.38	34,736	-431
109	EDSR Energiedienste Staldenried AG, Staldenried/Switzerland	5	20.00	233	13
110	Wolkenhaus GmbH, Visp/Switzerland	5	20.00	113	49
System Critical Infrastructure segment					
Fully consolidated companies					
111	ED Netze GmbH, Rheinfelden	3, 6	100.00	145,165	–
112	EnBW Kommunale Beteiligungen GmbH, Stuttgart	3, 6	100.00	995,495	–
113	EnBW Nachhaltige Quartiere GmbH, Karlsruhe (formerly EnBW Omega 143. Verwaltungsgesellschaft mbH, Karlsruhe)	6	100.00	1,552	-3
114	EnBW Netze BW Beteiligungsgesellschaft mbH, Stuttgart	15	100.00	–	–
115	EnBW REG Beteiligungsgesellschaft mbH, Stuttgart	15	100.00	–	–
116	EnBW Urbane Infrastruktur GmbH, Karlsruhe	15	100.00	–	–
117	Energieversorgung Südbaar GmbH & Co. KG, Blumberg	5	100.00	6,103	72
118	EnPulse Ventures GmbH, Stuttgart	15	100.00	–	–
119	EVGA Grundstücks- und Gebäudemanagement GmbH & Co. KG, Obrigheim	6	100.00	91,621	13,209
120	FRONTIER TECHNOLOGIES, s.r.o., Prague/Czech Republic	5	100.00	1,368	315
121	G.EN. Operator Sp. z o.o., Tarnowo Podgórne/Poland	6	100.00	39,636	665
122	GDMcom GmbH, Leipzig	3, 6	100.00	34,879	–
123	GEOMAGIC GmbH, Leipzig	6	100.00	3,121	1,900
124	KORMAK Praha a.s., Prague/Czech Republic	5	100.00	1,087	962
125	Netze BW Wasser GmbH, Stuttgart	15	100.00	–	–
126	Netze ODR GmbH, Ellwangen Jagst	3	100.00	174,131	–
127	Netze-Gesellschaft Südwest mbH, Karlsruhe	3, 6	100.00	89,139	–
128	Netzgesellschaft Düsseldorf mbH, Düsseldorf	3, 5	100.00	1,000	–
129	NHF Netzgesellschaft Heilbronn-Franken mbH, Heilbronn	3, 6	100.00	4,000	–
130	NHL Netzgesellschaft Heilbronner Land GmbH & Co. KG, Heilbronn	3, 6	100.00	1,524	–
131	NWS Grundstücksmanagement GmbH & Co. KG, Obrigheim	15	100.00	–	–
132	NWS REG Beteiligungsgesellschaft mbH, Stuttgart	15	100.00	–	–
133	ONTRAS Gastransport GmbH, Leipzig	3, 6	100.00	760,000	–
134	PRE distribucni sluzby, a.s., Prague/Czech Republic	11	100.00	–	–
135	PREdistribuce a.s., Prague/Czech Republic	5	100.00	637,518	61,233
136	PREmerení a.s., Prague/Czech Republic	5	100.00	40,007	8,551
137	PREnetcom, a.s., Prague/Czech Republic	5	100.00	2,381	783
138	Q-Süd Gewerbe GmbH & Co. KG, Heilbronn	6	100.00	19,665	210
139	Q-Süd Wohnen GmbH & Co. KG, Heilbronn	6	100.00	16,571	99
140	RBS wave GmbH, Stuttgart	15	100.00	–	–
141	SMIGHT GmbH, Karlsruhe	6	100.00	1,572	1,076
142	terranets bw GmbH, Stuttgart	3, 6	100.00	335,000	–
143	TransnetBW GmbH, Stuttgart	3, 6	100.00	3,944,347	–
144	ZEAG Engineering GmbH, Heilbronn	6	100.00	4,889	1,209
145	EnBW Ostwürttemberg DonauRies AG, Ellwangen	3	99.74	115,439	–
146	ZEAG Energie AG, Heilbronn	6	98.66	226,572	24,239
147	Gas-Union GmbH, Frankfurt am Main	3, 6	98.15	67,486	–
148	FoxInsights GmbH, Munich	6	92.00	-4,708	-1,866
149	Netze BW GmbH, Stuttgart	3, 6	86.51	1,130,861	–
150	WTT CampusONE GmbH, Ludwigsburg		80.00	2,217	1,921
151	Stadtwerke Düsseldorf AG, Düsseldorf	5	54.95	643,447	89,000
152	EnBW Übertragungsnetz Immobiliengesellschaft mbH & Co. KG, Karlsruhe	15	50.10	–	–

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
153	Stromnetzgesellschaft Heilbronn GmbH & Co. KG, Heilbronn	6, 8	49.90	36,093	1,677
154	Neckar Netze GmbH & Co. KG, Esslingen am Neckar	6, 8	49.00	49,936	5,830
Non-consolidated affiliated entities[18]					
155	Batteriegesellschaft Kupferzell GmbH & Co. KG, Kupferzell	5	100.00	8	-1
156	CENTRALE HYDROGENE DE LA GRANDE BORNE SAS, Montpellier/France	11	100.00	–	–
157	CENTRALE HYDROGENE DE THENNES SAS, Montpellier/France	5	100.00	1	0
158	ChargeHere GmbH, Karlsruhe	5	100.00	-1,280	-1,305
159	DZ-4 GmbH, Hamburg	5	100.00	-7,810	-10,133
160	Elektrizitätswerk Aach GmbH, Aach	5	100.00	3,619	885
161	EnBW Cyber Security GmbH, Karlsruhe	3, 5	100.00	25	–
162	Energieversorgung Gaildorf OHG der EnBW Kommunale Beteiligungen GmbH und NWS REG Beteiligungsgesellschaft mbH, Gaildorf	5	100.00	2,243	616
163	GDMcom Bau GmbH, Cavertitz (formerly Schneider GmbH, Cavertitz)	5	100.00	5,998	526
164	GDMcom Netze GmbH, Leipzig	5	100.00	2,338	-339
165	GDMcom Planung GmbH, Zeulenroda-Triebes (formerly IBZ Neubauer GmbH, Zeulenroda-Triebes)	5	100.00	962	425
166	GEOMAGIC Utility Solutions Inc., Houston/USA	5	100.00	228	52
167	IBZ Bau GmbH, Zeulenroda-Triebes	5	100.00	2,642	544
168	InfraKom GmbH, Rheinfelden Baden	5	100.00	25	-1
169	InfraKom WaR GmbH, Rheinfelden Baden	5	100.00	24	-1
170	MoviaTec GmbH, Leipzig	5	100.00	1,310	276
171	Neckar Netze Verwaltungsgesellschaft mbH, Esslingen am Neckar	5	100.00	137	4
172	Netze Regional GmbH, Stuttgart	5	100.00	-54	-79
173	NHL Verwaltungs-GmbH, Heilbronn	5	100.00	25	0
174	OSG ONTRAS Servicegesellschaft mbH, Leipzig	5	100.00	25	0
175	Rieger Beteiligungs-GmbH, Lichtenstein, Kreis Reutlingen	5	100.00	41	5
176	Rieger GmbH & Co. KG, Lichtenstein, Kreis Reutlingen	5	100.00	1,187	400
177	Verwaltungsgesellschaft Batteriespeicher Kupferzell mbH, Kupferzell	5	100.00	24	0
178	Weishaupt Planungen GmbH, Grimma	5	100.00	3,126	-246
179	Wärmegesellschaft Heilbronn GmbH, Heilbronn	5	100.00	-77	-62
180	INFRACON Infrastruktur Service GmbH & Co. KG, Leipzig	5	99.50	3,973	3,227
181	Netze Pforzheim-Region GmbH & Co. KG, Pforzheim	5	60.00	8,047	698
182	Energieversorgung Donautal GmbH, Gundelfingen an der Donau	5	50.10	1,760	6
183	Gasnetzgesellschaft Laupheim GmbH & Co. KG, Laupheim	5	50.10	3,590	173
184	Gasnetzgesellschaft Laupheim Verwaltungs GmbH, Laupheim	5	50.10	30	0
185	Netzgesellschaft Elz-Neckar GmbH & Co. KG, Obrigheim	5	50.10	1,164	7
186	Netzgesellschaft Elz-Neckar Verwaltungs GmbH, Obrigheim	5	50.10	36	1
187	Stromnetzgesellschaft Albershausen GmbH & Co. KG, Albershausen	5	50.10	1,225	77
188	Stromnetzgesellschaft Albershausen Verwaltungs GmbH, Albershausen	5	50.10	34	1
189	Stromnetzgesellschaft Heilbronn Verwaltungs-GmbH, Heilbronn	5	50.10	27	0
190	Stromnetzgesellschaft Laupheim GmbH & Co. KG, Laupheim	5	50.10	3,068	94
191	Stromnetzgesellschaft Laupheim Verwaltungs GmbH, Laupheim	5	50.10	31	0
192	Netze Krauchenwies Verwaltungs-GmbH, Krauchenwies	5	50.00	28	1
Entities accounted for using the equity method					
193	Stadtwerke Esslingen am Neckar GmbH & Co. KG, Esslingen am Neckar	5	49.98	63,186	6,146
194	Pražská energetika Holding a.s., Prague/Czech Republic	5, 9	49.00	247,947	39,894
195	GasLINE Telekommunikationsnetzgesellschaft deutscher Gasversorgungsunternehmen mbH & Co. Kommanditgesellschaft, Straelen	5	29.24	131,719	33,320
196	Zweckverband Landeswasserversorgung, Stuttgart	5	27.20	117,951	2,200
197	Heilbronner Versorgungs GmbH, Heilbronn	4, 5	25.10	51,750	–
198	Stuttgart Netze GmbH, Stuttgart	4, 5, 9	25.10	329,944	–
199	FairEnergie GmbH, Reutlingen	4, 5	24.90	122,666	–
200	Energieversorgung Rheinfelden/Grenzach-Wyhlen GmbH & Co. KG, Rheinfelden Baden	5	24.00	31	-7
201	Stadtwerke Karlsruhe GmbH, Karlsruhe	4, 5	20.00	199,770	–
202	Zweckverband Bodensee-Wasserversorgung, Stuttgart	5, 17	19.83	165,307	5,000

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
Investments[18]					
203	Netzgesellschaft Sontheim GmbH & Co. KG, Sontheim an der Brenz	5	74.90	1,941	350
204	Netzgesellschaft Sontheim Verwaltungsgesellschaft mbH, Sontheim an der Brenz	5	74.90	28	2
205	Netzgesellschaft Steinheim GmbH & Co. KG, Steinheim am Albuch	5	74.90	417	78
206	Netzgesellschaft Steinheim Verwaltungsgesellschaft mbH, Steinheim am Albuch	5	74.90	28	2
207	Stromnetz Herrenberg Verwaltungsgesellschaft mbH, Herrenberg	5	74.90	36	1
208	Stromnetzgesellschaft Herrenberg mbH & Co. KG, Herrenberg	5	74.90	4,327	461
209	Stadtwerke Sinsheim Versorgungs GmbH & Co. KG, Sinsheim	5	60.00	13,599	-686
210	Stadtwerke Sinsheim Verwaltungs GmbH, Sinsheim	5	60.00	35	1
211	Stromnetz Langenau GmbH & Co. KG, Langenau	5	50.10	2,626	122
212	Stromnetz Langenau Verwaltungs-GmbH, Langenau	5	50.10	39	1
213	e.wa riss GmbH & Co. KG, Biberach	5	50.00	36,317	4,355
214	e.wa riss Verwaltungsgesellschaft mbH, Biberach	5	50.00	57	2
215	Flexcess GmbH, Bayreuth	5	50.00	931	7
216	Fränkische Wasser Service GmbH, Crailsheim	5	50.00	45	7
217	lictor GmbH, Leipzig	5	50.00	411	34
218	NETFIN Infrastructure, a.s., Prague/Czech Republic	5	50.00	78	-5
219	Netze Krauchenwies GmbH & Co. KG, Krauchenwies	5	50.00	1,572	111
220	Niederrheinisch-Bergisches Gemeinschaftswasserwerk GmbH, Düsseldorf	5	50.00	3,108	92
221	Ostalbwasser Ost GmbH, Ellwangen	5	50.00	55	3
222	Ostalbwasser Service GmbH, Aalen	5	50.00	38	13
223	Ostalbwasser West GmbH, Schwäbisch Gmünd	5	50.00	36	-1
224	regioaqua Gesellschaft für Wasser und Abwasser mbH, Rheinfelden	5	50.00	128	20
225	Stadtwerke Schramberg GmbH & Co. KG, Schramberg	5	50.00	16,384	2,105
226	Stadtwerke Schramberg Verwaltungsgesellschaft mbH, Schramberg	5	50.00	48	2
227	Wasserübernahme Neuss-Wahlscheid GmbH, Neuss	5	50.00	465	11
228	EberstadtWerke GmbH & Co. KG, Eberstadt	5	49.99	182	-6
229	Stadtwerke Emmendingen GmbH, Emmendingen	5	49.90	17,982	1,149
230	Stromnetz Blaubeuren GmbH, Blaubeuren	5	49.90	2,971	178
231	Netzgesellschaft Gerstetten mbH, Gerstetten	11	49.80	–	–
232	Stadtwerke Esslingen-Verwaltungsgesellschaft mbH, Esslingen am Neckar	5	49.80	48	1
233	Energie Sachsenheim GmbH & Co. KG, Sachsenheim	5	49.00	4,863	359
234	Energie Sachsenheim Verwaltungs-GmbH, Sachsenheim	5	49.00	39	1
235	LEO Energie GmbH & Co. KG, Leonberg	5	49.00	10,195	444
236	Netzgesellschaft Marbach GmbH & Co. KG, Marbach am Neckar	5	49.00	2,560	147
237	Rems-Murr Telekommunikation GmbH, Waiblingen	5	49.00	3,973	-3
238	Stadtwerke Backnang GmbH, Backnang	4, 5	49.00	14,940	–
239	Stadtwerke Bad Wildbad GmbH & Co. KG, Bad Wildbad	5	49.00	6,643	771
240	Stadtwerke Bad Wildbad Verwaltungs-GmbH, Bad Wildbad	5	49.00	47	1
241	Stadtwerke Eppingen GmbH & Co. KG, Eppingen	5	49.00	8,575	720
242	Energie Calw GmbH, Calw	4, 5	48.82	19,240	–
243	KBB GmbH Kommunalberatung Infrastrukturentwicklung, Baden-Baden	5	45.00	271	51
244	Stadtwerke Münsingen GmbH, Münsingen	5	45.00	7,612	607
245	Stadtwerke Böblingen GmbH & Co. KG, Böblingen	5	41.10	42,812	2,486
246	Stadtwerke Böblingen Verwaltungs GmbH, Böblingen	5	41.10	6	0
247	Gemeindewerke Bodanrück GmbH & Co. KG, Allensbach	5	40.00	3,949	207
248	Gemeindewerke Bodanrück Verwaltungs-GmbH, Allensbach	5	40.00	32	1
249	SUEnergie GmbH & Co. KG, Süßen	5	40.00	2,214	81
250	SUEnergie Verwaltungs GmbH, Süßen	5	40.00	36	1
251	Stadtwerke Weinheim GmbH, Weinheim	5	39.32	33,456	2,917
252	Energieversorgung Rottenburg am Neckar GmbH, Rottenburg am Neckar	4, 5	38.00	7,660	–
253	EVG Grächen AG, Grächen/Switzerland	5	35.00	5,293	70
254	EVN Energieversorgung Nikolai AG, St. Niklaus/Switzerland	5, 7	35.00	1,836	113
255	EVR Energieversorgung Raron AG, Raron/Switzerland	5, 7	35.00	1,031	85
256	EVWR Energiedienste Visp-Westlich Raron AG, Visp/Switzerland	5	35.00	4,994	383

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
257	VED Visp Energie Dienste AG, Visp/Switzerland	5, 7	35.00	4,035	398
258	nue GmbH, Berlin (formerly certflow GmbH, Stuttgart)	5	33.33	19	-6
259	Seeallianz GmbH & Co. KG, Markdorf	5	33.00	7,527	456
260	Taubernetze GmbH & Co. KG, Tauberbischofsheim	5	33.00	2,436	153
261	Taubernetze Verwaltungs-GmbH, Tauberbischofsheim	5	33.00	30	1
262	ErmstalEnergie Dettingen an der Erms GmbH & Co. KG, Dettingen an der Erms	5	32.60	4,975	468
263	Versorgungsbetriebe Dettingen an der Erms Verwaltungs-GmbH, Dettingen an der Erms	5	32.60	25	1
264	eneREGIO GmbH, Muggensturm	5	32.00	12,949	1,058
265	Regionalnetze Linzgau GmbH, Pfullendorf	4, 5	31.64	6,462	–
266	Elektrizitätswerk Mittelbaden AG & Co. KG, Lahr	5	31.00	67,085	15,359
267	Elektrizitätswerk Mittelbaden Verwaltungsaktiengesellschaft, Lahr	5	31.00	166	8
268	Levl Energy GmbH, Stuttgart	11	30.00	–	–
269	Stadtwerke Bad Herrenalb GmbH, Bad Herrenalb	5	30.00	10,625	-976
270	Energie- und Wasserversorgung Bruchsal GmbH, Bruchsal	4, 5	27.41	23,002	–
271	Stadtwerke Bad Säckingen GmbH, Bad Säckingen	3, 5	26.30	16,939	–
272	Albwerk GmbH & Co. KG, Geislingen an der Steige	5	25.10	31,189	5,638
273	Albwerk Verwaltungsgesellschaft mbH, Geislingen an der Steige	5	25.10	9	3
274	Energie Kirchheim unter Teck GmbH & Co. KG, Kirchheim unter Teck	5	25.10	12,055	737
275	Energie Kirchheim unter Teck Verwaltungs-GmbH, Kirchheim unter Teck	5	25.10	33	1
276	Energieversorgung Immenstaad GmbH & Co. KG, Immenstaad am Bodensee	5	25.10	985	42
277	Energieversorgung Strohgäu GmbH & Co. KG, Gerlingen	5	25.10	8,957	460
278	Energieversorgung Strohgäu Verwaltungs GmbH, Gerlingen	5	25.10	26	1
279	Filderstadt Netze GmbH, Filderstadt	5	25.10	147	-14
280	Gasnetzgesellschaft Schorndorf GmbH & Co. KG, Schorndorf	5	25.10	4,728	390
281	Gasnetzverwaltungsgesellschaft Schorndorf GmbH, Schorndorf	5	25.10	36	1
282	Gemeindewerke Brühl GmbH & Co. KG, Brühl	5	25.10	1,507	31
283	Gemeindewerke Brühl Verwaltungs-GmbH, Brühl	5	25.10	36	1
284	Gemeindewerke Plüderhausen GmbH, Plüderhausen	4, 5	25.10	1,941	–
285	Infrastrukturgesellschaft Plochingen GmbH & Co. KG, Plochingen	5	25.10	4,224	314
286	Netzgesellschaft Besigheim GmbH & Co. KG, Besigheim	5	25.10	4,753	271
287	Netzgesellschaft Besigheim Verwaltungs GmbH, Besigheim	5	25.10	35	1
288	Netzgesellschaft Leinfelden-Echterdingen GmbH, Leinfelden-Echterdingen	5	25.10	13,351	816
289	Netzgesellschaft Salach GmbH & Co. KG, Salach	5	25.10	3,709	189
290	Netzgesellschaft Salach Verwaltungs GmbH, Salach	5	25.10	34	1
291	Netzgesellschaft Schwetzingen GmbH & Co. KG, Schwetzingen	5	25.10	2,441	118
292	Netzgesellschaft Schwetzingen Verwaltungs GmbH, Schwetzingen	5	25.10	32	1
293	Netzgesellschaft Vaihingen GmbH & Co. KG, Vaihingen an der Enz	5	25.10	8,369	618
294	Netzgesellschaft Vaihingen Verwaltungs-GmbH, Vaihingen an der Enz	5	25.10	35	1
295	Stadtwerke Ellwangen GmbH, Ellwangen	4, 5	25.10	13,132	–
296	Stadtwerke Giengen GmbH, Giengen	5	25.10	15,516	1,627
297	Stadtwerke Schwäbisch Gmünd GmbH, Schwäbisch Gmünd	4, 5	25.10	30,751	–
298	Stadtwerke Stockach GmbH, Stockach	5	25.10	15,103	2,035
299	Stadtwerke Weinstadt Energieversorgung GmbH, Weinstadt	4, 5	25.10	7,653	–
300	Stadtwerke Wiesloch - Strom - GmbH & Co. KG, Wiesloch	5	25.10	2,624	129
301	Stromgesellschaft March GmbH & Co. KG, March	5	25.10	966	0
302	Stromnetzgesellschaft Ebersbach GmbH & Co. KG, Ebersbach an der Fils	5	25.10	4,356	120
303	Stromnetzgesellschaft Ebersbach Verwaltungs GmbH, Ebersbach an der Fils	5	25.10	35	1
304	Stromnetzgesellschaft Östlicher Schurwald GmbH & Co. KG, Rechberghausen	5	25.10	3,265	169
305	Stromnetzgesellschaft Östlicher Schurwald Verwaltungs GmbH, Rechberghausen	5	25.10	34	1
306	Technische Werke Schussental GmbH & Co. KG, Ravensburg	5	25.10	62,840	5,941
307	Technische Werke Schussental Verwaltungsgesellschaft mbH, Ravensburg	5	25.10	30	11
308	tktVivax GmbH, Backnang	5	25.06	2,123	183
309	Elektroenergetické datové centrum, a.s., Prague/Czech Republic	11	25.00	–	–
310	Switchboard GmbH, Stuttgart	16	25.00	4	-21
311	Stromversorgung Sulz am Neckar GmbH, Sulz am Neckar	16	24.90	4.318	273

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
312	Netzeigentumsgesellschaft Rheinstetten GmbH & Co. KG, Rheinstetten	5	24.50	4,928	127
313	Stadtwerke Schopfheim GmbH, Schopfheim	5	24.50	110	-232
314	Stadtwerke Wehr GmbH & Co. KG, Wehr	5	24.50	3,363	456
315	Stadtwerke Wehr Verwaltungs-GmbH, Wehr	5	24.50	24	1
316	Energieversorgung Oberes Wiesental GmbH, Todtnau	5	24.00	4,377	267
317	Netzgesellschaft Edingen-Neckarhausen GmbH & Co. KG, Edingen-Neckarhausen	5	24.00	1,188	67
318	q-bility GmbH, Gerolsbach Alberzell	5	22.50	-535	-560
319	ENRW Energieversorgung Rottweil GmbH & Co. KG, Rottweil	5	20.00	33,376	3,945
320	ENRW Verwaltungs-GmbH, Rottweil	5	20.00	15	1
321	Stadtwerke Sindelfingen GmbH, Sindelfingen	5	20.00	52,107	8,715
322	Versorger-Allianz 450 Beteiligungs GmbH & Co. KG, Bonn	5	17.63	27,859	-880
Sustainable Generation Infrastructure segment					
Fully consolidated companies					
323	Aletsch AG, Mörel/Switzerland	6	100.00	28,007	1,436
324	AWISTA Logistik GmbH, Düsseldorf	3, 5	100.00	3,025	–
325	BALANCE Erneuerbare Energien GmbH, Leipzig	3, 6	100.00	49,615	–
326	Barre Energie SARL, Montpellier/France		100.00	68	-8
327	Biogas Produktion Altmark GmbH, Hohenberg-Krusemark	6	100.00	16,047	-6,501
328	Cambert Énergie SARL, Montpellier/France		100.00	64	531
329	Centrale Photovoltaïque de la Forêt Baignollais SARL, Montpellier/France		100.00	134	287
330	Centrale Photovoltaïque de la ZA de Gaudet SARL, Montpellier/France		100.00	1	728
331	Centrale Photovoltaïque de Saint Quentin la Tour SAS, Montpellier/France		100.00	-174	-105
332	Centrale Solaire d'Exideuil SARL, Montpellier/France		100.00	-606	374
333	Centrale Solaire de Bors de Montmoreau SARL, Montpellier/France		100.00	1	2,005
334	Centrale Solaire de Châteauvert SARL, Montpellier/France		100.00	-153	431
335	Centrale Solaire de Coste Cuyère SARL, Montpellier/France		100.00	23	844
336	Centrale Solaire de Maine SARL, Montpellier/France		100.00	-174	-128
337	Centrale Solaire de Montegut SARL, Montpellier/France		100.00	-153	-63
338	Centrale Solaire de Severac SARL, Montpellier/France		100.00	-336	147
339	Centrale Solaire des Terres Rouges SARL, Montpellier/France		100.00	-1,567	508
340	Centrale Solaire du Sycala SARL, Montpellier/France		100.00	1	-1,439
341	Centrale Solaire du Tea Fleury-Merogis SARL, Montpellier/France		100.00	-385	-274
342	Centrale Solaire EMA Solar SARL, Montpellier/France		100.00	-329	-131
343	Centrales Solaires de l'Isle sur la Sorgue SAS, Montpellier/France		100.00	-293	-93
344	Connected Wind Services A/S, Balle/Denmark	5	100.00	5,422	-4,267
345	Connected Wind Services Danmark A/S, Balle/Denmark	5	100.00	1,593	475
346	Connected Wind Services Deutschland GmbH, Rantrum	5	100.00	1,559	-1,541
347	Connected Wind Services France SAS, Dijon/France	5	100.00	589	-655
348	Connected Wind Services Refurbishment A/S, Balle/Denmark	5	100.00	-20	173
349	Couffrau Energie SARL, Montpellier/France		100.00	30	-44
350	Deves Énergie SARL, Montpellier/France		100.00	9	806
351	EnBW Biogas GmbH, Stuttgart	3, 6	100.00	52	–
352	EnBW Biomasse GmbH, Karlsruhe	6	100.00	3,739	652
353	EnBW Erneuerbare Operation & Service GmbH, Klausdorf (formerly EnBW Offshore Service GmbH, Klausdorf)	3, 6	100.00	12,140	–
354	EnBW Etzel Speicher GmbH, Karlsruhe	3, 6	100.00	825	–
355	EnBW France GmbH, Stuttgart	15	100.00	–	–
356	EnBW Grundstücksverwaltung Rheinhafen GmbH, Karlsruhe		100.00	2,153	-118
357	EnBW Holding A.S., Gümüssuyu-Istanbul/Turkey	6	100.00	237,478	-136
358	EnBW Kraftwerk Lippendorf Beteiligungsgesellschaft mbH, Stuttgart	3, 6	100.00	97,640	–
359	EnBW Mainfrankenpark GmbH, Dettelbach	3, 6	100.00	3,759	–
360	EnBW NAG-Beteiligungsgesellschaft mbH, Stuttgart	6	100.00	21	-4
361	EnBW Norway AS, Oslo/Norway	5	100.00	468	478
362	EnBW Offshore 1 GmbH, Stuttgart	15	100.00	–	–
363	EnBW Offshore 2 GmbH, Stuttgart	15	100.00	–	–

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
364	EnBW Offshore 3 GmbH, Stuttgart	15	100.00	–	–
365	EnBW Offshore 4 GmbH, Stuttgart	15	100.00	–	–
366	EnBW Offshore Service Denmark ApS, Skødstrup/Denmark	6	100.00	3,765	39
367	EnBW Renewables International GmbH, Stuttgart	15	100.00	–	–
368	EnBW Rückbauservice GmbH, Stuttgart	15	100.00	–	–
369	EnBW Solar GmbH, Stuttgart	3, 6	100.00	244,551	–
370	EnBW Solarpark Gottesgabe GmbH, Stuttgart	3, 6	100.00	73,182	–
371	EnBW Solarpark Tuningen GmbH, Stuttgart	3, 6	100.00	2,733	–
372	EnBW Solarpark Weesow-Willmersdorf GmbH, Stuttgart	3, 6	100.00	81,034	–
373	EnBW Sverige AB, Falkenberg/Sweden	5	100.00	89,327	21,785
374	EnBW UK Limited, London/United Kingdom	5	100.00	73,199	76,088
375	EnBW Wind Onshore 1 GmbH, Stuttgart	3, 6	100.00	25	–
376	EnBW Windkraftprojekte GmbH, Stuttgart	3, 6	100.00	277,839	–
377	EnBW Windpark Hemme GmbH, Stuttgart	6	100.00	-92	-210
378	EnBW Windpark Prötzel GmbH, Stuttgart	6	100.00	5,485	614
379	ENERGIEUNION GmbH, Schwerin	3, 6	100.00	6,223	–
380	Erdgasspeicher Peissen GmbH, Halle (Saale)	6	100.00	-126,696	3,632
381	Ferme Éolienne de la Bessière SARL, Montpellier/France		100.00	-1,525	517
382	Ferme Éolienne de Puech de Cambert SARL, Montpellier/France		100.00	308	884
383	Ferme Éolienne de Puech de l'Homme SARL, Montpellier/France		100.00	1,446	489
384	Gemeinschaftsheizkraftwerk Fortuna GmbH, Düsseldorf	5	100.00	242,134	1,750
385	Gesellschaft für nukleares Reststoffrecycling mbH, Neckarwestheim	15	100.00	–	–
386	Gramentes Énergie SAS, Montpellier/France		100.00	-1,732	31
387	Grünwerke GmbH, Düsseldorf	3, 5	100.00	38,400	–
388	Heizkraftwerk Stuttgart GmbH, Stuttgart	6	100.00	5,274	130
389	Interconnector GmbH, Karlsruhe	3, 6	100.00	25	–
390	Kernkraftwerk Obrigheim GmbH, Obrigheim	3, 6	100.00	51,130	–
391	Kraftwerk Lötschen AG, Steg/Switzerland	6	100.00	32,381	1,017
392	La Société des Monts de Lacaune SAS, Montpellier/France		100.00	2,317	-106
393	Le Val Energie SARL, Montpellier/France		100.00	1	654
394	MSE Mobile Schlammentwässerungs GmbH, Karlsbad-Ittersbach	15	100.00	–	–
395	naturenergie hochrhein AG, Rheinfelden Baden (formerly Energiedienst AG, Rheinfelden Baden)	6	100.00	205,208	35,265
396	Parc Éolien de Bornay 2 SARL, Montpellier/France		100.00	734	9
397	Parc Éolien de Breuillac SARL, Montpellier/France		100.00	835	-463
398	Parc Éolien de Champs Perdus 2 SARL, Montpellier/France		100.00	843	870
399	Parc Éolien de la Vallée de Belleuse SARL, Montpellier/France		100.00	1	615
400	Parc Éolien de le Quesnel SARL, Montpellier/France		100.00	763	-933
401	Parc Éolien de Marendeuil SARL, Montpellier/France		100.00	-806	778
402	Parc Éolien du Mont de l'Echelle SARL, Montpellier/France		100.00	511	-28
403	Parc Éolien du Mont de Maisnil SARL, Montpellier/France		100.00	-408	592
404	PRE FVE Nové Sedlo, s.r.o., Prague/Czech Republic	5	100.00	-33	-21
405	PRE FVE Svetlik s.r.o., Leitnowitz/Czech Republic	5	100.00	5,197	994
406	PRE VTE Částkov s.r.o., Prague/Czech Republic	5	100.00	-397	152
407	Socpe de Champs Perdus SARL, Montpellier/France		100.00	-1,306	-47
408	SOLARINVEST - GREEN ENERGY, s.r.o., Prague/Czech Republic	5	100.00	1,290	251
409	Svenska Connected Wind Services AB, Falkenberg/Sweden	6	100.00	989	327
410	TAE Thermische Abfallentsorgung Ansbach GmbH, Ansbach		100.00	60,961	1,804
411	TPLUS GmbH, Karlsruhe	15	100.00	–	–
412	TWS Kernkraft GmbH, Gemmrigheim	3, 6	100.00	149,297	–
413	u-plus Umweltservice GmbH, Karlsruhe	15	100.00	–	–
414	Valeco SAS, Montpellier/France		100.00	121,828	-2,349
415	VNG Gasspeicher GmbH, Leipzig	3, 6	100.00	21,311	–
416	VNG Gasspeicher Service GmbH, Leipzig	3, 6	100.00	132	–
417	VNG Handel & Vertrieb GmbH, Leipzig	3, 6	100.00	37,840	–
418	Windpark "Auf der Weißen Trisch" GmbH, Zweibrücken		100.00	2,573	443

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
419	Windpark Breitenbach GmbH, Düsseldorf	6	100.00	25	359
420	Windpark Obhausen/Nemsdorf GmbH & Co. KG, Stuttgart	6	100.00	15,100	2,538
421	Windpark Rot am See GmbH, Ellwangen Jagst	3, 6	100.00	25	–
422	EE Bürgerenergie Braunsbach GmbH & Co. KG, Braunsbach	6	99.99	7,600	781
423	BürgerEnergie Königheim GmbH & Co. KG, Königheim	6	99.97	3,000	307
424	EE BürgerEnergie Forchtenberg GmbH & Co. KG, Forchtenberg	6	99.93	1,500	166
425	EE BürgerEnergie Krautheim GmbH & Co. KG, Krautheim	6	99.90	8,336	-120
426	EE BürgerEnergie Roigheim GmbH & Co. KG, Roigheim	6	99.90	2,080	-189
427	EnBW Kernkraft GmbH, Obrigheim	4, 6	99.80	10,000	–
428	EnAlpin AG, Visp/Switzerland	6	98.60	275,787	13,959
429	Erneuerbare Energien Tauberbischofsheim GmbH & Co. KG, Tauberbischofsheim	6	98.00	753	-94
430	Valeco Solar SARL, Montpellier/France		95.20	1	718
431	EE BürgerEnergie Möckmühl GmbH & Co. KG, Möckmühl	6	95.17	1,575	160
432	EE BürgerEnergie Jagsthausen GmbH & Co. KG, Jagsthausen	6	95.11	4,625	219
433	Bürgerenergie Widdern GmbH & Co. KG, Widdern	6	95.07	9,072	181
434	JatroSolutions GmbH, Karlsruhe (formerly JatroSolutions GmbH, Stuttgart)	6	94.55	-1,537	-131
435	EE BürgerEnergie Rosenberg GmbH & Co. KG, Rosenberg	6	92.45	2,980	-278
436	EnPV GmbH, Karlsruhe	6	90.48	5,446	-2,479
437	Südwestdeutsche Nuklear-Entsorgungsgesellschaft mbH, Stuttgart	6	86.49	7,959	583
438	EE Bürgerenergie Hardthausen GmbH & Co. KG, Hardthausen am Kocher	6	84.40	12,393	1,353
439	Langenburg Infrastruktur GmbH, Stuttgart	6	83.33	7,214	-59
440	Neckar Aktiengesellschaft, Stuttgart	6	82.20	17,179	0
441	EE BürgerEnergie Boxberg GmbH & Co. KG, Boxberg	6	78.31	16,600	1,897
442	Zentraldeponie Hubbelrath GmbH, Düsseldorf	6	76.00	6,136	24
443	Geothermie-Gesellschaft Bruchsal GmbH, Bruchsal	6	74.90	3,690	1,539
444	Saint Laurent Solar SAS, Montpellier/France		72.02	547	1,727
445	Energiedienst Holding AG, Laufenburg/Switzerland	6, 10	66.67	1,144,253	35,105
446	Centrale Solaire de la Durance SARL, Montpellier/France		65.00	935	572
447	Parc Éolien de Bel Air SAS, Montpellier/France		63.40	-457	-222
448	EE Bürgerenergie Ilshofen GmbH & Co. KG, Ilshofen	6	60.25	3,950	516
449	EnBW Windpark Aalen-Waldhausen GmbH, Stuttgart	6	59.00	20,386	709
450	Rheinkraftwerk Neuhausen AG, Neuhausen/Switzerland	6	56.00	1,343	55
451	EnBW Solarpark Ingoldingen GmbH, Stuttgart	6	55.00	3,269	32
452	Erneuerbare Energien Neckarwestheim GmbH & Co. KG, Neckarwestheim	6	51.90	1,050	16
453	AWISTA Gesellschaft für Abfallwirtschaft und Stadtreinigung mbH, Düsseldorf	5	51.00	57,481	25,262
454	Centrale Solaire de Saint Mamet SARL, Montpellier/France		51.00	-753	30
455	Solarpark Berghülen GmbH, Stuttgart	6	51.00	2,228	4
456	Solarpark Leutkirch GmbH & Co. KG, Leutkirch im Allgäu	6	51.00	6,243	505
457	Solarpark Riedlingen-Zwiefaltendorf GmbH, Stuttgart	6	51.00	4,020	40
458	KNG Kraftwerks- und Netzgesellschaft mbH, Rostock	6	50.40	560	875
459	EnBW Baltic 1 GmbH & Co. KG, Biberach an der Riß	6	50.32	42,175	2,224
460	EnBW Albatros GmbH & Co. KG, Biberach an der Riß	6	50.11	389,624	36,112
461	EnBW Hohe See GmbH & Co. KG, Biberach an der Riß	6	50.11	1,612,664	161,962
462	EnBW Baltic 2 GmbH & Co. KG, Biberach an der Riß	6	50.10	675,915	12,125
463	EnBW He Dreiht GmbH & Co. KG, Biberach an der Riß (formerly EnBW He Dreiht GmbH, Varel)	15	50.10	–	–
464	EnBW SunInvest GmbH & Co. KG, Stuttgart	6	50.10	314,125	17,234
465	EnBW WindInvest GmbH & Co. KG, Stuttgart	6	50.10	162,801	7,207
466	EnBW Windpark Buchholz III GmbH, Stuttgart	6	50.10	16,677	36
467	Windenergie Tautschbuch GmbH, Riedlingen		50.10	619	-1
468	EnBW Onshore Portfolio GmbH, Stuttgart	6	50.02	47,081	3,941
469	EnBW Solarpark Birkenfeld GmbH, Stuttgart		50.00	3,301	100
470	Energie Renouvelable du Languedoc SARL, Montpellier/France		50.00	-3,192	-1,196
471	Joncels Energie SARL, Montpellier/France		50.00	-2,973	-46
Joint operations					
472	Friedeburger Speicherbetriebsgesellschaft mbH "Crystal", Friedeburg	6, 9	50.00	63,657	43

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
473	Rheinkraftwerk Iffezheim GmbH, Iffezheim	6, 9	50.00	80,253	2,625
474	Rhonewerke AG, Ernen/Switzerland	5, 9	30.00	32.088	2.756
Non-consolidated affiliated entities[18]					
475	BALANCE Management GmbH, Leipzig	5	100.00	15	-3
476	Biogas Trelder Berg 1 GmbH, Buchholz	3, 5	100.00	1,125	–
477	Biogas Trelder Berg 2 GmbH, Buchholz	3, 5	100.00	525	–
478	Biogas Trelder Berg 3 GmbH, Buchholz	3, 5	100.00	525	–
479	Biosphärenwindpark Schwäbische Alb GmbH, Stuttgart	5	100.00	146	-4
480	Bliekevare Nät AB, Falkenberg/Sweden	5	100.00	60	277
481	CarbonBW (Thailand) Ltd., Bangkok/Thailand	5	100.00	14,394	632
482	CAS DE BROSSAC SARL, Montpellier/France	5	100.00	-38	-5
483	CAS DE CANET SAS, Montpellier/France	5	100.00	1	0
484	CAS DE CUSEY SAS, Montpellier/France	5	100.00	1	0
485	CAS DE LA DURANDIERE SAS, Montpellier/France	11	100.00	–	–
486	CAS DE LA LOGE SAS, Montpellier/France	11	100.00	–	–
487	CAS de la Plaine SAS, Montpellier/France	5	100.00	-7	-8
488	CAS DE LIGLET SAS, Montpellier/France	11	100.00	–	–
489	CAS DE LIGNAC SAS, Montpellier/France	5	100.00	1	0
490	CAS DE L'ABBAYE LE CLOU SAS, Montpellier/France	5	100.00	1	0
491	CAS DE MALIGNY SARL, Montpellier/France	5	100.00	-25	-5
492	CAS DE MEILLANT SASU, Montpellier/France	5	100.00	-5	-5
493	CAS DE MONTIGNY-SUR-AUBE SAS, Montpellier/France	11	100.00	–	–
494	CAS de Raix SAS, Montpellier/France	11	100.00	–	–
495	CAS DE RUNASQUER SARL, Montpellier/France (formerly CAS DE SOULERIS SARL, Montpellier/France)	5	100.00	-31	-8
496	CAS DE SAUVIGNAC SAS, Montpellier/France	11	100.00	–	–
497	CAS DE TAUROU-BAYSSIERES SARL, Montpellier/France	5	100.00	-6	-1
498	CAS DE TOTAINVILLE SAS, Montpellier/France	11	100.00	–	–
499	CAS DE TREVOL SAS, Montpellier/France	11	100.00	–	–
500	CAS EXPERIMENTATION AGRO-CINERGIE SARL, Montpellier/France (formerly Parc Éolien de Bornay SARL, Montpellier/France)	5	100.00	-36	-5
501	Centernach Énergie SARL, Montpellier/France	5	100.00	-920	42
502	Centrale de stockage d'énergie de Barre SARL, Montpellier/France (formerly Ferme Éolienne de la Ferrière-de-Flée SARL, Montpellier/France)	5	100.00	-17	-5
503	Centrale de stockage d'énergie de Foulventour SAS, Montpellier/France (formerly PE des Paqueriès SAS, Montpellier/France)	5	100.00	-7	-8
504	Centrale Photovoltaïque de Sirius SARL, Montpellier/France	5	100.00	284	303
505	Centrale Photovoltaïque des Gravières SARL, Montpellier/France	5	100.00	-65	-12
506	Centrale Photovoltaïque Retour sur l'Isle SARL, Montpellier/France	5	100.00	-22	-7
507	Centrale Sol. de la Foret au Maitre SAS, Montpellier/France	5	100.00	-11	-5
508	Centrale Solaire de Beauce SARL, Montpellier/France	5	100.00	-33	-6
509	Centrale Solaire de Biltagarbi SARL, Montpellier/France	5	100.00	-319	-26
510	Centrale Solaire de Carré Sud SARL, Montpellier/France	5	100.00	-95	-28
511	Centrale Solaire de Catreille SARL, Montpellier/France	5	100.00	-39	-21
512	Centrale Solaire de Châteauperouse SARL, Montpellier/France	5	100.00	-8	-2
513	Centrale Solaire de Clave SARL, Montpellier/France	5	100.00	-81	-6
514	Centrale Solaire de Colombiers SARL, Montpellier/France	5	100.00	-126	44
515	Centrale Solaire de la Fourchale SAS, Montpellier/France	5	100.00	-11	-5
516	Centrale Solaire de la Tastère SARL, Montpellier/France	5	100.00	-26	-6
517	Centrale Solaire de les Leches SAS, Montpellier/France	5	100.00	-10	-5
518	Centrale Solaire de Leyritz-Moncassin SAS, Montpellier/France	5	100.00	-11	-5
519	Centrale Solaire de Lunel SARL, Montpellier/France	5	100.00	106	71
520	Centrale Solaire de MAGNAC-LAVAL SAS, Montpellier/France	5	100.00	-10	-5
521	Centrale Solaire de Nohanent SARL, Montpellier/France	5	100.00	-17	-5
522	Centrale Solaire de Peregrine SARL, Montpellier/France	5	100.00	-35	-19
523	Centrale Solaire de Roubian SARL, Montpellier/France	5	100.00	-77	-7

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
524	Centrale Solaire de Saint Leger de Balson SARL, Montpellier/France	5	100.00	-227	-198
525	Centrale Solaire de Saint-Just SAS, Montpellier/France	5	100.00	-14	-10
526	Centrale Solaire de Saumejan SAS, Montpellier/France	5	100.00	-11	-5
527	Centrale Solaire de Til Chatel 2 SARL, Montpellier/France	5	100.00	-13	-5
528	Centrale Solaire de Til Chatel SARL, Montpellier/France	5	100.00	-41	-14
529	Centrale Solaire des Coëvrons SARL, Montpellier/France	5	100.00	-44	-18
530	Centrale Solaire des Moulins Lodevois SARL, Montpellier/France	5	100.00	-28	-5
531	Centrale Solaire du Bois Comte SARL, Montpellier/France	5	100.00	-25	-11
532	Centrale Solaire du Caussanel SARL, Montpellier/France	5	100.00	-35	-13
533	Centrale Solaire du Tertre SAS, Montpellier/France	5	100.00	-11	-5
534	Centrale Solaire d'Aguessac SAS, Montpellier/France	5	100.00	-16	-33
535	Centrale Solaire EuroPrimeur SARL, Montpellier/France	5	100.00	-4	-1
536	Centrale Solaire la Charme SARL, Montpellier/France	5	100.00	-5	-2
537	Centrales Solaires d'Hyperion SARL, Montpellier/France	5	100.00	-21	-2
538	Centrales Solaires de Terreneuve SARL, Montpellier/France	5	100.00	-28	-5
539	Centrales Solaires des Terres Rouges 3 SAS, Montpellier/France	5	100.00	-9	-5
540	Centrales Solaires du Languedoc SARL, Montpellier/France	5	100.00	446	128
541	CP D'ORVAL SASU, Montpellier/France	5	100.00	-6	-7
542	CS DE BLENEAU SAS, Montpellier/France	11	100.00	–	–
543	CS DE CLUNDOC'H SARL, Montpellier/France	5	100.00	-4	-1
544	CS DE COURTENAY SASU, Montpellier/France	5	100.00	-6	-6
545	CS DE DAMMARIE EN PUISAYS SAS, Montpellier/France	11	100.00	–	–
546	CS DE DOMERAT SASU, Montpellier/France	5	100.00	-5	-5
547	CS DE FONTAINES SARL, Montpellier/France	5	100.00	-4	-1
548	CS DE GRON SAS, Montpellier/France	11	100.00	–	–
549	CS DE LA GOUTTE SARL, Montpellier/France (formerly Parc Éolien du Bois du Piné SARL, Montpellier/France)	5	100.00	-17	-5
550	CS DE LA GRANDE MAIREE SARL, Montpellier/France	5	100.00	-24	-5
551	CS DE LA GROLLE SASU, Montpellier/France	5	100.00	-6	-6
552	CS DE LA TOUREILLE SARL, Montpellier/France	5	100.00	-39	-5
553	CS DE LA VALLEE SARL, Montpellier/France	5	100.00	-6	-1
554	CS DE LIGUGE SAS, Montpellier/France	11	100.00	–	–
555	CS DE LONGUYON SASU, Montpellier/France	5	100.00	1	0
556	CS DE L'ATELIER COMMUNAL SAS, Montpellier/France	11	100.00	–	–
557	CS DE L'ANCIENNE CARRIERE D'HAMEL SARL, Montpellier/France	5	100.00	-9	-1
558	CS DE MAGNY SUR TILLE SASU, Montpellier/France	5	100.00	-6	-6
559	CS DE MAGNY-DANIGON-PUITS-ARTHUR SAS, Montpellier/France	11	100.00	–	–
560	CS DE MORNAY SUR ALLIER SASU, Montpellier/France	5	100.00	-5	-5
561	CS DE PANZOULT SAS, Montpellier/France	11	100.00	–	–
562	CS DE PEZENES SARL, Montpellier/France	5	100.00	-38	-5
563	CS DE PIERREFITE SAS, Montpellier/France	5	100.00	-11	-6
564	CS DE SAINT-JULIEN-LE-MONTAGNIER SAS, Montpellier/France	11	100.00	–	–
565	CS DE SALLAUMINES SARL, Montpellier/France	5	100.00	-4	-1
566	CS DE SANCOINS SASU, Montpellier/France	5	100.00	-5	-5
567	CS DE SCHOENECK SAS, Montpellier/France	11	100.00	–	–
568	CS DE VERETZ SAS, Montpellier/France	11	100.00	–	–
569	CS DES CHAUMES SASU, Montpellier/France	5	100.00	-5	-5
570	CS DES GRANDS CHAMPS SASU, Montpellier/France	5	100.00	1	0
571	CS des Roches Bleues SARL, Montpellier/France	5	100.00	-23	-5
572	CS DES TROIS VALLEES SARL, Montpellier/France	5	100.00	-21	-1
573	CS DU CAKEMPIN SARL, Montpellier/France	5	100.00	-6	-1
574	CS DU CARROI SARL, Montpellier/France	5	100.00	15	-1
575	CS DU PRAT DEL FOUR SARL, Montpellier/France (formerly Centrale Photovoltaïque de Pavailler SARL, Montpellier/France)	5	100.00	-17	-1

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
576	CS D'AMPUS SAS, Montpellier/France (formerly Centrale Photovoltaïque Domitita SAS, Montpellier/France)	5	100.00	-6	-5
577	CS LAS SERETTES SASU, Montpellier/France	5	100.00	-6	-7
578	CS Ste AGATHE LA BOUTERESSE SARL, Montpellier/France (formerly Centrale Solaire d'Algosud SARL, Montpellier/France)	5	100.00	-6	-1
579	CS VEINAZES SASU, Montpellier/France	5	100.00	-6	-6
580	Düsseldorfer Entsorgungs- und Stadtreinigungsgesellschaft mbH, Düsseldorf	5	100.00	25	0
581	EnBW Albatros Management GmbH, Biberach an der Riß	5	100.00	30	1
582	EnBW Baltic 1 Verwaltungsgesellschaft mbH, Biberach an der Riß	5	100.00	28	1
583	EnBW Baltic 2 Management GmbH, Biberach an der Riß	5	100.00	42	-2
584	EnBW Baltic Windpark Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	38	1
585	EnBW Bürgerbeteiligung Wind 1 GmbH, Stuttgart	3, 5	100.00	25	–
586	EnBW Energy SA, Lausanne/Switzerland	11	100.00	–	–
587	EnBW Generation UK Limited, London/United Kingdom	11	100.00	–	–
588	EnBW He Dreiht Management GmbH, Stuttgart	5	100.00	25	0
589	EnBW Hohe See Management GmbH, Biberach an der Riß	5	100.00	32	1
590	EnBW Holm Vind AB, Falkenberg/Sweden	5	100.00	2	0
591	EnBW International Markets GmbH, Karlsruhe	3, 5	100.00	24	–
592	EnBW Kusberget Vind AB, Falkenberg/Sweden	5	100.00	1,232	-5
593	EnBW Neue Energien GmbH, Stuttgart	3, 5	100.00	1,690	–
594	EnBW Offshore 5 GmbH, Karlsruhe (formerly EnBW Omega Sechsundachtzigste Verwaltungs-gesellschaft mbH, Karlsruhe)	3, 5	100.00	25	–
595	EnBW Offshore 6 GmbH, Karlsruhe (formerly EnBW Omega Vierundneunzigste Verwaltungs-gesellschaft mbH, Karlsruhe)	3, 5	100.00	25	–
596	EnBW Offshore 7 GmbH, Karlsruhe (formerly EnBW Omega Fünfundneunzigste Verwaltungs-gesellschaft mbH, Karlsruhe)	3, 5	100.00	25	–
597	EnBW Okome Vind AB, Falkenberg/Sweden	5, 7	100.00	2	0
598	EnBW Solar Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	34	6
599	EnBW Solarpark Emmingen-Liptingen GmbH & Co. KG, Stuttgart	5	100.00	3	-8
600	EnBW Solarpark Gickelfeld GmbH & Co. KG, Stuttgart	5	100.00	2,531	8
601	EnBW Solarpark Groß Lübbenau GmbH & Co. KG, Stuttgart	5	100.00	1,337	-1
602	EnBW Solarpark Göritz GmbH & Co. KG, Stuttgart	5	100.00	890	-18
603	EnBW Solarpark Kroppen GmbH & Co. KG, Stuttgart	5	100.00	949	-11
604	EnBW Solarpark Lauenhagen GmbH, Stuttgart	5	100.00	23	0
605	EnBW Solarpark Lindenau GmbH & Co. KG, Stuttgart	5	100.00	837	-15
606	EnBW Solarpark Rot an der Rot GmbH & Co. KG, Stuttgart	5	100.00	4	-2
607	EnBW Solarpark Sonnewalde GmbH & Co. KG, Stuttgart	5	100.00	1,278	-9
608	EnBW SunInvest Management GmbH, Stuttgart	5	100.00	26	0
609	EnBW Wind Onshore Portfolio 2019 GmbH, Stuttgart	5	100.00	24	0
610	EnBW Wind Onshore Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	36	-2
611	EnBW WindInvest Management GmbH, Stuttgart	5	100.00	27	3
612	EnBW Windpark Kleinliebringen GmbH, Stuttgart	5	100.00	16	-1
613	EnBW Windpark Ober-Ramstadt GmbH, Ober-Ramstadt	5	100.00	23	0
614	EnergieFinanz GmbH, Schwerin	5	100.00	961	19
615	Ferme Éolienne Beaucamps-le-Jeune SARL, Montpellier/France	5	100.00	-16	-5
616	Ferme Éolienne de Donzère SARL, Montpellier/France	5	100.00	381	265
617	Ferme Éolienne de la Vallée de Valenne SARL, Montpellier/France	5	100.00	-16	-5
618	Ferme Éolienne de Plo d'Amoures SAS, Montpellier/France	5	100.00	-439	-24
619	Grünwerke Verwaltungs GmbH, Düsseldorf	5	100.00	49	3
620	HAUT DU VAL DE SAONE ENERGIE SASU, Montpellier/France	5	100.00	-5	-5
621	Mistral SAS, Aix-en-Provence/France	5	100.00	-14	-5
622	Mélagues Energie SAS, Montpellier/France	5	100.00	-232	-7
623	NatürlichSonne Trogen GmbH & Co. KG, Wittlich	5	100.00	541	227
624	NatürlichSonne Trogen Verwaltungs GmbH, Ettlingen	5	100.00	15	-3
625	Norseman Wind AS, Kristiansand/Norway (formerly Norseman Wind AS, Oslo/Norway)	5	100.00	63	-310
626	ODR Erneuerbare Energien GmbH, Ellwangen Jagst	11	100.00	–	–

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
627	Parc Éolien d'Amfreville-les-Champs SARL, Montpellier/France	5	100.00	-82	-29
628	Parc Éolien d'Argillières SARL, Montpellier/France	5	100.00	-148	-90
629	Parc Éolien d'Hilvern SARL, Montpellier/France	5	100.00	-17	-5
630	Parc Éolien de Barbezières-Lupsault SARL, Montpellier/France	5	100.00	-25	-5
631	Parc Éolien de Bellenoie SAS, Montpellier/France	5	100.00	-11	-5
632	Parc Éolien de Boussais SARL, Montpellier/France	5	100.00	-32	-7
633	Parc Éolien de Champ Serpette SARL, Montpellier/France	5	100.00	-42	-5
634	Parc Éolien de Chan des Planasses SARL, Montpellier/France	5	100.00	-43	-5
635	Parc Éolien de Chasseneuil SARL, Montpellier/France	5	100.00	-116	-6
636	Parc Éolien de Combaynart SARL, Montpellier/France	5	100.00	-18	-5
637	Parc Éolien de Houarn SAS, Montpellier/France	5	100.00	-18	-5
638	Parc Éolien de Keranflech SARL, Montpellier/France	5	100.00	-37	-11
639	Parc Éolien de Kerimard SARL, Montpellier/France	5	100.00	-17	-5
640	Parc Éolien de l'Epinette SARL, Montpellier/France	5	100.00	-52	-5
641	Parc Éolien de la Bussière SARL, Montpellier/France	5	100.00	-80	-8
642	Parc Éolien de la Cote du Moulin SARL, Montpellier/France	5	100.00	-15	-5
643	Parc Éolien de la Cressionnière SARL, Montpellier/France	5	100.00	-35	-5
644	Parc Éolien de la Fougère SARL, Montpellier/France	5	100.00	-114	-27
645	Parc Éolien de la Naulerie SARL, Montpellier/France	5	100.00	-8	-5
646	Parc Éolien de la Pezille SARL, Montpellier/France	5	100.00	-17	-5
647	Parc Éolien de la Queille SARL, Montpellier/France	5	100.00	-13	-5
648	Parc Éolien de la Roche SARL, Montpellier/France	5	100.00	1	-7
649	Parc Éolien de la Vallée Berlure SARL, Montpellier/France	5	100.00	-32	-5
650	Parc Éolien de Lupsault SARL, Montpellier/France	5	100.00	-21	-5
651	Parc Éolien de l'Etourneau SARL, Montpellier/France	5	100.00	-21	-5
652	Parc Éolien de Mandres la Cote SAS, Montpellier/France	5	100.00	-25	-5
653	Parc Éolien de Monsures SARL, Montpellier/France	5	100.00	-134	-10
654	Parc Éolien de Nongée SARL, Montpellier/France	5	100.00	-92	-51
655	Parc Éolien de Noroy SARL, Montpellier/France	5	100.00	-34	-5
656	Parc Éolien de Picoud SARL, Montpellier/France	5	100.00	-19	-5
657	Parc Éolien de Pistole SARL, Montpellier/France	5	100.00	-22	-5
658	Parc Éolien de Prinquies SAS, Montpellier/France	5	100.00	-46	-15
659	Parc Éolien de Pugny SARL, Montpellier/France	5	100.00	-15	-5
660	Parc Éolien de Revelles SAS, Montpellier/France	5	100.00	-8	-5
661	Parc Éolien de Ribemont SARL, Montpellier/France	5	100.00	-32	-5
662	Parc Éolien de Saint-Ygeaux SAS, Montpellier/France	5	100.00	-20	-5
663	Parc Éolien de Sery-les-Mezières SARL, Montpellier/France	5	100.00	-17	-5
664	Parc Éolien de Thennes SARL, Montpellier/France	5	100.00	-33	-5
665	Parc Éolien de Vellexon SARL, Montpellier/France	5	100.00	-24	-5
666	Parc Éolien de Vervant et Lea SARL, Montpellier/France	5	100.00	-54	-8
667	Parc Éolien de Warlus SARL, Montpellier/France	5	100.00	-59	-5
668	Parc Éolien des Bouiges SARL, Montpellier/France	5	100.00	-198	-111
669	Parc Éolien des Brandes de l'Ozon Sud SARL, Montpellier/France	5	100.00	-92	-5
670	Parc Éolien des Cours SAS, Montpellier/France	5	100.00	-9	-5
671	Parc Éolien des Ecoulottes SARL, Montpellier/France	5	100.00	-401	-298
672	Parc Éolien des Gaudines SARL, Montpellier/France	5	100.00	-24	-6
673	Parc Éolien des Gours SARL, Montpellier/France	5	100.00	-16	-5
674	Parc Éolien des Quatre Chemins SARL, Montpellier/France	5	100.00	-30	-5
675	Parc Éolien des Rapailles SARL, Montpellier/France	5	100.00	-24	-5
676	Parc Éolien des Rieux SARL, Montpellier/France	5	100.00	-34	-22
677	Parc Éolien des Saules SARL, Montpellier/France	5	100.00	-81	-46
678	Parc Éolien des Smermesnil SAS, Montpellier/France	5	100.00	-9	-5
679	Parc Éolien du Bel Essart SARL, Montpellier/France	5	100.00	-42	-5
680	Parc Éolien du Bois de la Motte SARL, Montpellier/France	5	100.00	-18	-5
681	Parc Éolien du Bois du Raz SAS, Montpellier/France	5	100.00	-9	-5

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
682	Parc Éolien du Fresnay SARL, Montpellier/France	5	100.00	-16	-5
683	Parc Éolien du Frestoy SARL, Montpellier/France	5	100.00	-19	-5
684	Parc Éolien du Houssais SARL, Montpellier/France	5	100.00	-16	-5
685	Parc Éolien du Mecorbon SARL, Montpellier/France	5	100.00	-64	-36
686	Parc Éolien du Moulin a Vent SARL, Montpellier/France	5	100.00	-13	-5
687	Parc Éolien du Puy Peret SARL, Montpellier/France	5	100.00	-106	-8
688	Parc Éolien le Mont du Bouillet SAS, Montpellier/France	5	100.00	-9	-5
689	PE CHEMIN JUSTICE SAS, Amiens/France	11	100.00	–	–
690	PE de Brion SAS, Montpellier/France	5	100.00	-8	-5
691	PE DE CHAMPAGNE MOUTON SAS, Montpellier/France	11	100.00	–	–
692	PE DE FAUJOL SAS, Montpellier/France	11	100.00	–	–
693	PE DE FORBEAUVOISIN SAS, Montpellier/France	11	100.00	–	–
694	PE DE JAPPE-RENARD SAS, Montpellier/France	11	100.00	–	–
695	PE DE LA CHAPELLE SAINT ETIENNE SARL, Montpellier/France	5	100.00	-24	-5
696	PE DE LA CHENAIE D'EOLE SAS, Montpellier/France	11	100.00	–	–
697	PE DE LA FAVILLIERE SAS, Montpellier/France	11	100.00	–	–
698	PE DE LA GRANDE BORNE SARL, Montpellier/France	11	100.00	–	–
699	PE DE LA PATURELLE SAS, Montpellier/France	5	100.00	1	0
700	PE DE LA PLAINE DE GRUCHET SAS, Montpellier/France	11	100.00	–	–
701	PE DE LA RIXOUSE SAS, Montpellier/France	11	100.00	–	–
702	PE DE LA RONCE SARL, Montpellier/France (formerly PE DES POMMERAIES SARL, Montpellier/France)	5	100.00	-23	-5
703	PE DE LANN DU SAS, Montpellier/France	11	100.00	–	–
704	PE DE LONGECOURT SARL, Montpellier/France (formerly Parc Éolien de Ravery SARL, Montpellier/France)	5	100.00	-18	-5
705	PE DE MAREILLES SAS, Montpellier/France	11	100.00	–	–
706	PE DE RAIX SAS, Montpellier/France	11	100.00	–	–
707	PE DE ROCHE-ET-RAUCOURT SAS, Montpellier/France	5	100.00	-7	-6
708	PE DE SAINT-GENOU SAS, Montpellier/France	5	100.00	1	0
709	PE DE TENNIE SASU, Montpellier/France	5	100.00	1	0
710	PE DES BRANDIERES SASU, Montpellier/France	5	100.00	1	0
711	PE DES BRETONNIERES SARL, Montpellier/France	5	100.00	-372	-316
712	PE DES EPIS DE BLE SARL, Montpellier/France	5	100.00	-21	-5
713	PE DES LAVIERES SAS, Montpellier/France	5	100.00	-8	-5
714	PE DES MAZOIRES SAS, Montpellier/France	5	100.00	1	0
715	PE DU BINGARD SARL, Montpellier/France	5	100.00	-38	-14
716	PE du Bois Breton SAS, Montpellier/France	5	100.00	-8	-5
717	PE DU MOULIN DE LA BUTTE SAS, Montpellier/France	11	100.00	–	–
718	PE DU PIROUET 2 SAS, Montpellier/France	11	100.00	–	–
719	PE VENTE-BEN SARL, Montpellier/France	5	100.00	-32	-5
720	POSTE PRIVE DE LA VALLEE D'AUGE SARL, Montpellier/France (formerly Parc Éolien des Terres de Caumont SARL, Montpellier/France)	5	100.00	-62	-22
721	POSTE PRIVE DE MAINE-ET-LOIRE SUD SARL, Montpellier/France (formerly PE DU PIROUET SARL, Montpellier/France)	5	100.00	-16	-5
722	POSTE PRIVE DU GRELLE SARL, Montpellier/France (formerly Parc Éolien des Navarros SARL, Montpellier/France)	5	100.00	-48	-8
723	Poste privé du Bois de Grassoy SARL, Montpellier/France (formerly Parc Éolien de Mouterre-Silly SARL, Montpellier/France)	5	100.00	-33	-9
724	P² Plant & Pipeline Engineering GmbH, Essen	5	100.00	2,386	473
725	Röbergsfjället Nät AB, Falkenberg/Sweden	5	100.00	8	41
726	SENEC Solar s.r.l., Bari/Italy	5, 6	100.00	11	-1
727	Sepe de la Gare SAS, Montpellier/France	5	100.00	185	143
728	SP 33 GmbH & Co. KG, Cottbus	5	100.00	1	-2
729	SP 34 GmbH & Co. KG, Cottbus	5	100.00	1	-2
730	Valeco Énergie Québec Inc., Montréal/Canada	5	100.00	-1,419	-655
731	VNG Italia S.r.l., Bologna/Italy	5	100.00	43,445	-485
732	Windpark Wiemerstedt II GmbH & Co. KG, Stuttgart	5	100.00	100	-1

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
733	ZEAG Erneuerbare Energien GmbH, Heilbronn	5	100.00	55	30
734	ZEPHYR HOLDING SAS, Montpellier/France (formerly Ferme Éolienne de Thalis SAS, Montpellier/France)	5	100.00	-261	-128
735	EE Bürgerenergie Bühlerzell GmbH & Co. KG, Bühlerzell	5	99.90	30	-12
736	EE Bürgerenergie Hardheim GmbH & Co. KG, Hardheim	5	99.90	0	-22
737	EE Bürgerenergie Höpfingen GmbH & Co. KG, Höpfingen	5	99.90	20	-17
738	EE Bürgerenergie Frankenhardt GmbH & Co. KG, Frankenhardt	5	99.00	63	-5
739	EE BürgerEnergie Neudenau GmbH & Co. KG, Neudenau	5	99.00	55	-6
740	EE BürgerEnergie Osterburken GmbH & Co. KG, Osterburken	11	99.00	–	–
741	EE BürgerEnergie Pfaffenhofen GmbH & Co. KG, Pfaffenhofen	11	99.00	–	–
742	EE Bürgerenergie Sulzbach-Laufen GmbH & Co. KG, Sulzbach-Laufen	5	99.00	59	-8
743	EE BürgerEnergie Zaberfeld GmbH & Co. KG, Zaberfeld	11	99.00	–	–
744	Neue Energie Billigheim GmbH & Co. KG, Billigheim	5	99.00	90	-7
745	EE BürgerEnergie Schöntal GmbH & Co. KG, Schöntal	5	98.00	0	0
746	EnBW Solarpark Gückelhirn GmbH & Co. KG, Stuttgart	5	98.00	10	-2
747	Parc Éolien des Bruyères SAS, Plaisance/France	5	95.02	-26	-6
748	CS DE TEILHEDE SAS, Montpellier/France	5	95.00	1	0
749	EE BürgerEnergie Heuchelberg GmbH & Co. KG, Schwaigern	11	95.00	–	–
750	Parc Éolien des Moussières SARL, Montpellier/France	5	95.00	-24	-5
751	PE DE LAPAIROUSE SAS, Montpellier/France	5	95.00	1	0
752	PE DES ESSARDS SAS, Montpellier/France	5	95.00	1	0
753	PE DE LA FONTAINE OISEAU SAS, Montpellier/France	5	91.00	-5	-5
754	CAS DE SAIGUEDE SAS, Montpellier/France	11	90.00	–	–
755	CAS DES MAROUILLERS SAS, Montpellier/France	11	90.00	–	–
756	Parc Éolien de la Lanques-sur-Rognon SARL, Montpellier/France	5	90.00	-24	-5
757	PE DE LA JARROUE SAS, Montpellier/France	5	90.00	-5	-5
758	PE DES HAUTES-FAGES 2 SAS, Montpellier/France	5	90.00	1	0
759	PE DES POMMERAIES SAS, Montpellier/France	11	90.00	–	–
760	PE DU FOSSE PICARD SAS, Montpellier/France	5	90.00	-8	-5
761	Parc Éolien de Brebières SAS, Montpellier/France	5	87.86	-21	-7
762	Parc Éolien de la Celle Saint CYR SAS, Montpellier/France	5	87.00	-9	-5
763	PE DU GRAND CHANOIS SAS, Montpellier/France	11	85.00	–	–
764	PE DE LA GRANDE CHARME SAS, Montpellier/France	5	83.33	-5	-5
765	HOLDING DE LA VILAINE SAS, Montpellier/France	5	75.00	-5	-6
766	JatroGreen S.A.R.L., Antananarivo/Madagascar	5	70.00	69	17
767	PE DE LA LANDE LIVREUL SAS, Montpellier/France	11	70.00	–	–
768	Nahwärme Düsseldorf GmbH, Düsseldorf	5	66.00	2,545	150
769	Labruguière Énergies SAS, Montpellier/France	5	63.00	1,563	1,066
770	Hydro Léman SARL, Montpellier/France	5	57.00	-13	-2
771	PE DES LANDES DE LA GRENOUILLERE SASU, Montpellier/France	5	55.00	-6	-6
772	Alb-Windkraft Verwaltungs GmbH, Geislingen an der Steige	5	51.00	55	10
773	Neuenstadter Energie GmbH & Co. KG, Neuenstadt am Kocher	11	51.00	–	–
774	Solarpark Leutkirch Verwaltungsgesellschaft mbH, Leutkirch im Allgäu	5	51.00	30	1
775	PE DES PISTES SAS, Amiens/France	11	50.10	–	–
776	Sonnensysteme AF GmbH, Ottobrunn, Munich district	5, 6	50.10	1,521	1,160
777	Kemberg Windpark Management GmbH & Co. Betriebsgesellschaft KG, Düsseldorf	5	33.33	1,309	472
Entities accounted for using the equity method					
778	Valeco Ren SAS, Montpellier/France	5, 9	51.00	53,677	75,307
779	Borusan EnBW Enerji yatırımları ve Üretim Anonim Şirketi, Istanbul/Turkey	5, 9	50.00	313,042	82,446
780	Elektrizitätswerk Rheinau AG, Rheinau/Switzerland	5, 7	50.00	24,139	841
781	Fernwärme Ulm GmbH, Ulm	5, 7, 9	50.00	37,197	2,619
782	Mona Offshore Wind Holdings Limited, Sunbury-On-Thames/United Kingdom	5, 9	50.00	31,687	2
783	Morgan Offshore Wind Holdings Limited, Sunbury-On-Thames/United Kingdom	5, 9	50.00	31,686	2
784	Morven Offshore Wind Holdings Limited, Sunbury-On-Thames/United Kingdom	5	50.00	142,156	8
785	Schluchseewerk Aktiengesellschaft, Laufenburg Baden	5	50.00	73,384	2,809

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
786	REMONDIS Rhein-Wupper GmbH & Co. KG, Düsseldorf	5	49.00	17,859	11,382
787	Bayerische-Schwäbische Wasserkraftwerke Beteiligungsgesellschaft mbH, Gundremmingen	5	37.80	62,819	8,431
788	Grosskraftwerk Mannheim AG, Mannheim	5	32.00	154,022	6,647
789	KW Ackersand I AG, Stalden/Switzerland	5	25.00	2,503	327
Investments[18]					
790	Netzanschlussgesellschaft Windparks Ostercappeln/Bohmte mbH, Kirchdorf	5	66.66	152	10
791	UW Obhausen GmbH & Co. OHG, Stuttgart	5	58.06	74	0
792	PE DE POULGAT SAS, Montpellier/France	11	55.00	–	–
793	Centrale Solaire des Calottes SARL, Montpellier/France	5	50.34	-42	-37
794	Aranea Battery Solutions GmbH, Stuttgart	5, 6	50.00	3,331	482
795	BALANCE EnviTec Bio-LNG GmbH & Co. KG, Ahrensfelde (formerly BALANCE EnviTec Bio-LNG GmbH, Ahrensfelde)	5	50.00	4,843	-264
796	biogasNRW GmbH i.L., Düsseldorf	14	50.00		
797	Centrale Electrique Rhénane de Gambsheim SA, Gambsheim/France	5	50.00	9,004	0
798	Centrale Solaire Lac Bedorede SAS, Montpellier/France	5	50.00	-82	-75
799	EE BürgerEnergie Buchen GmbH & Co. KG, Buchen Odenwald	5	50.00	0	0
800	EE BürgerEnergie Lauffen am Neckar GmbH & Co. KG, Lauffen am Neckar	11	50.00	–	–
801	EnergyIncore GmbH, Schwerin	5	50.00	93	22
802	Holding de la Montagne Noire SARL, Montpellier/France	5	50.00	-4	-3
803	KDM Kompostierungs- und Vermarktungsgesellschaft für Stadt Düsseldorf/Kreis Mettmann mit beschränkter Haftung, Ratingen	5	50.00	2,194	204
804	Kraftwerk Aegina A.G., Obergoms/Switzerland	5, 7	50.00	14,791	790
805	Kraftwerk Reckingen AG, Reckingen	5	50.00	3,203	72
806	Parc Éolien des Quintefeuilles SAS, Montpellier/France	5	50.00	-844	-431
807	Parc Éolien Vallée de l'Escrebieux SAS, Montpellier/France	5	50.00	-22	-7
808	Powerment GmbH & Co. KG, Ettlingen	5	50.00	3,290	3,699
809	REEFUELERY GmbH, Bakum	5	50.00	10,175	-220
810	Rheinkraftwerk Säckingen AG, Bad Säckingen	5	50.00	8,404	300
811	RheinWerke GmbH, Düsseldorf	5	50.00	5,245	303
812	Wasserkraftwerk Hausen GbR, Hausen im Wiesental	5, 13	50.00	263	33
813	WKM Wasserkraftwerke Maulburg GmbH, Maulburg	5	50.00	536	13
814	MOWA Mobile Waschanlagen GmbH, Overath	5	49.00	486	453
815	EE BürgerEnergie Adelsheim GmbH & Co. KG, Adelsheim	5	49.00	87	-6
816	Elektrolyse Mitteldeutschland GmbH, Düsseldorf	5	49.00	25	0
817	KW Jungbach AG, St. Niklaus/Switzerland	5	49.00	4,566	335
818	Projektentwicklung Waldeck-Frankenberg Verwaltungs GmbH, Korbach	5	49.00	30	1
819	REMONDIS Rhein-Wupper Verwaltungs GmbH, Düsseldorf	5	49.00	37	0
820	Windpark Halsberg GmbH & Co. KG, Bad Arolsen (formerly Projektentwicklung Waldeck-Frankenberg GmbH & Co. KG, Korbach)	5	49.00	987	-28
821	HWM Holzwärme Müllheim GmbH, Müllheim	5	45.00	409	-64
822	Centrale Solaire de la Petite Vicomté SAS, Montpellier/France	5	44.00	209	-221
823	Obere Donau Kraftwerke AG, Munich	5	40.00	3,180	0
824	Segalasses Énergie SARL, Toulouse/France	5	40.00	4,842	1,128
825	TWKW Trinkwasserkraftwerke Niedergesteln AG, Niedergesteln/Switzerland	5	40.00	1,981	157
826	Untergrundspeicher- und Geotechnologie-Systeme Gesellschaft mit beschränkter Haftung, Mittenwalde	5	40.00	8,075	1,367
827	Kraftwerk Ryburg-Schwörstadt AG, Rheinfelden/Switzerland	5, 7	38.00	39,728	1,821
828	Parc Éolien de Montelu SAS, Montpellier/France	5	34.00	16	13
829	Parc Éolien des Gassouillis SAS, Montpellier/France	5	34.00	-3	-6
830	GEIE Exploitation Minière de la Chaleur, Kutzenhausen/France	5, 13	33.33	1,279	-1,004
831	Windpark Hemme Infrastrukturgesellschaft GmbH & Co. KG, Walddorfhäslach	16	33.33	-2	-5
832	Windpark Prützke II GmbH & Co. KG, Düsseldorf	5	33.33	1,342	511
833	KWT Kraftwerke Törbel-Moosalp AG, Törbel/Switzerland	5	30.00	980	0
834	Baltic Windpark Beteiligungen GmbH & Co. KG, Stuttgart	5	29.17	24,833	1,983
835	Kraftwerke Gougra AG, Sierre/Switzerland	5	27.50	60,891	2,897
836	EE Bürgerenergie Heilbronn GmbH & Co. KG, Heilbronn	5	26.00	1,000	105
837	Parc Éolien de Lavacquerié SAS, Montpellier/France	5	26.00	-532	-246

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
838	Windpark Lindtorf GmbH, Rheine	5	26.00	2,966	1,456
839	Alb-Windkraft GmbH & Co. KG, Geislingen an der Steige	5	25.50	792	921
840	EE BürgerEnergie Talheim GmbH & Co. KG, Talheim	11	25.10	–	–
841	Kooperation Erneuerbare Energien im Landkreis Rottweil GmbH, Schramberg	5	25.00	55	-7
842	ANOG Anergienetz Obergoms AG, Obergoms/Switzerland	5	24.50	222	12
843	KWOG Kraftwerke Obergoms AG, Obergoms/Switzerland	5	24.10	14,450	953
844	CARDABELLE HOLDING SAS, Montpellier/France	5	20.00	8,335	177
845	Wasserkraftwerk Pfinztal GmbH & Co. KG, Pfinztal	5	20.00	190	-6
Other					
Fully consolidated companies					
846	Der neue Stöckach GmbH & Co KG, Obrigheim	15	100.00	–	–
847	ED Immobilien GmbH & Co. KG, Rheinfelden	6	100.00	0	281
848	ED Immobilien Verwaltungsgesellschaft mbH, Rheinfelden	6	100.00	33	1
849	EnBW Betriebs- und Servicegesellschaft mbH, Karlsruhe	15	100.00	–	–
850	EnBW Central and Eastern Europe Holding GmbH, Stuttgart	15	100.00	–	–
851	EnBW City GmbH & Co. KG, Obrigheim	15	100.00	–	–
852	EnBW Immobilienbeteiligungen GmbH, Karlsruhe	6	100.00	526,845	25,778
853	EnBW International Finance B.V., Amsterdam/The Netherlands	6	100.00	109,589	29,149
854	EnBW New Ventures GmbH, Karlsruhe	15	100.00	–	–
855	EnBW Perspektiven GmbH, Karlsruhe	15	100.00	–	–
856	Facilma Grundbesitzmanagement und -service GmbH & Co. Besitz KG, Obrigheim	15	100.00	–	–
857	MURVA Grundstücks-Verwaltungsgesellschaft mbH & Co. KG, Grünwald	5	100.00	-3,997	1,531
858	Neckarwerke Stuttgart GmbH, Stuttgart	15	100.00	–	–
859	NWS Finanzierung GmbH, Karlsruhe	15	100.00	–	–
860	VNG AG, Leipzig	6	79.83	1,398,252	-53,902
861	ED Kommunal GmbH, Rheinfelden	6	73.57	37,526	1,332
862	EnBW VersicherungsVermittlung GmbH, Stuttgart	6	51.00	51	4,915
Non-consolidated affiliated entities[18]					
863	EnBW Bürgerbeteiligung Solar 1 GmbH, Stuttgart	3, 5	100.00	25	–
864	EnBW France SAS, Boulogne-Billancourt/France	5	100.00	-3	-8
865	EnBW Omega 107. Verwaltungsgesellschaft mbH, Stuttgart	3, 5	100.00	25	–
866	EnBW Omega 108. Verwaltungsgesellschaft mbH, Stuttgart	3, 5	100.00	25	–
867	EnBW Omega 121. Verwaltungsgesellschaft mbH, Karlsruhe	3, 5	100.00	25	–
868	EnBW Omega 122. Verwaltungsgesellschaft mbH, Karlsruhe	3, 5	100.00	25	–
869	EnBW Omega 123. Verwaltungsgesellschaft mbH, Stuttgart	3, 5	100.00	25	–
870	EnBW Omega 124. Verwaltungsgesellschaft mbH, Stuttgart	3, 5	100.00	25	–
871	EnBW Omega 125. Verwaltungsgesellschaft mbH, Stuttgart	3, 5	100.00	25	–
872	EnBW Omega 126. Verwaltungsgesellschaft mbH, Stuttgart	3, 5	100.00	25	–
873	EnBW Omega 132. Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	25	0
874	EnBW Omega 133. Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	25	0
875	EnBW Omega 134. Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	25	0
876	EnBW Omega 139. Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	25	0
877	EnBW Omega 140. Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	25	0
878	EnBW Omega 141. Verwaltungsgesellschaft mbH, Karlsruhe	5	100.00	26	1
879	EnBW Omega 144. Verwaltungsgesellschaft mbH, Karlsruhe	5	100.00	25	0
880	EnBW Omega 146. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
881	EnBW Omega 147. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
882	EnBW Omega 148. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
883	EnBW Omega 149. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
884	EnBW Omega 150. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
885	EnBW Omega 151. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
886	EnBW Omega 152. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
887	EnBW Omega 153. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
888	EnBW Omega 154. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–
889	EnBW Omega 155. Verwaltungsgesellschaft mbH, Stuttgart	11	100.00	–	–

		Footnote	Capital share[1] (in %)	Equity[2] (in T€)	Earnings[2] (in T€)
890	EnBW Omega 156. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
891	EnBW Omega 157. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
892	EnBW Omega 158. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
893	EnBW Omega 159. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
894	EnBW Omega 160. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
895	EnBW Omega 161. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
896	EnBW Omega 162. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
897	EnBW Omega 163. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
898	EnBW Omega 164. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
899	EnBW Omega 165. Verwaltungsgesellschaft mbH, Karlsruhe	11	100.00	–	–
900	EnBW Omega Neunundachtzigste Verwaltungsgesellschaft mbH, Karlsruhe	3, 5	100.00	25	–
901	EnBW Real Estate GmbH, Obrigheim	5	100.00	141	10
902	EnBW Senergi Immobilien GmbH, Karlsruhe	5	100.00	73	0
903	EnBW vernetzt Beteiligungsgesellschaft mbH, Stuttgart	5	100.00	260	5
904	KMS Verwaltungsgesellschaft mbH, Stuttgart	5	100.00	42	0
905	MGMTree GmbH, Leipzig	5	100.00	31	-102
906	MURVA Grundstücks-Verwaltungsgesellschaft mbH, Munich	5	100.00	30	1
907	Regionalnetze GmbH & Co. KG, Stuttgart	5	100.00	5	0
908	Regionalnetze Verwaltungs-GmbH, Stuttgart	5	100.00	23	0
909	Rheintal PE GmbH & Co. KG, Bad Homburg v. d. Höhe	5	100.00	74,833	27,275
910	VNG Innovation GmbH, Leipzig	3, 5	100.00	2,653	–
911	GDiesel Technology GmbH, Leipzig	5	60.00	311	-190
912	EnBW Übertragungsnetz Immobilien Verwaltungsgesellschaft mbH, Karlsruhe	5, 6	50.10	30	4
Investments[18]					
913	UnigestionFLEX SCS SICAV RAIF, Luxembourg/Luxembourg	5	100.00	306,174	6,301
914	WP Global Germany Private Equity L.P., Wilmington, Delaware/USA	5, 13	100.00	201,219	5,819
915	Sirius EcoTech Fonds Düsseldorf GmbH & Co. KG i.L., Düsseldorf	5	78.15	1,459	-2,814
916	ID Quadrat Verwaltungsgesellschaft mbH, Düsseldorf	5	50.00	28	1
917	Innovative Immobilien Duisburg Düsseldorf ID Quadrat GmbH & Co. Betriebsgesellschaft KG, Düsseldorf	5	50.00	4,905	-39
918	Intelligent Energy System Services GmbH, Ludwigsburg	5	50.00	2,229	761
919	Neuss-Düsseldorfer Häfen GmbH & Co. KG, Neuss	5	50.00	90,566	7,597
920	Neuss-Düsseldorfer Häfen Verwaltungs-GmbH, Neuss	5	50.00	65	2
921	regiodata GmbH, Lörrach	5	35.00	2,094	1,443
922	EFR Europäische Funk-Rundsteuerung GmbH, Munich	5	25.10	5,473	2,888
923	vialytics GmbH, Stuttgart	5	24.45	308	-2,595
924	GasLINE Telekommunikationsnetz-Geschäftsführungsgesellschaft deutscher Gasversorgungs-unternehmen mbH, Straelen	5	23.39	76	2

1 Shares of the respective parent company calculated in accordance with section 313 (2) HGB (as of 31/12/2023).
2 In the case of separate entities, the figures stem from financial statements prepared pursuant to local principles and do not show the contributions of each entity to the consolidated financial statements.
3 Profit and loss transfer agreement and/or domination agreement and/or loss assumption agreement.
4 Profit and loss transfer agreement with third parties.
5 Previous year's figures.
6 Preliminary figures.
7 Divergent financial year.
8 Control due to contractual agreement.
9 Joint control pursuant to IFRS 11.
10 Before taking treasury shares of the company into account.
11 New company, annual financial statements not yet available.
12 Other shareholdings included due to contractual control arrangements.
13 Companies whose shareholder with unlimited liability is a company that is included in the consolidated financial statements.
14 In liquidation. No financial statements available.
15 The company has made use of exemption provisions according to section 264 (3) HGB and section 264b HGB.
16 Most recent financial statements.
17 Significant influence due to contractual agreement.
18 Includes non-consolidated affiliated entities and other investments that are not fully consolidated or accounted for using the equity method because of their minor importance. They are recognized instead at their acquisition costs.

(39) Significant events after the reporting date

On 16 January 2024, EnBW issued a green subordinate bond with a total volume of €500 million. In accordance with the criteria in EnBW's Green Financing Framework, the funds will be exclusively used to finance climate-friendly projects. The green subordinated bond has a term of 60 years. EnBW has the right to redeem the bond with a starting coupon of 5.250% at the first call date on 23 October 2029. The bond is subordinate to all other financial liabilities but has an equal ranking to the existing subordinated bonds from EnBW.

According to the Natural Gas Act in the USA, LNG may only be exported from the USA with the approval of the Department of Energy. On 26 January 2024, the current US administration in the White House announced a temporary pause on all pending decisions for the export of LNG to countries which are not members of free trade agreements. This decision impacts the LNG procurement agreement made by EnBW with Venture Global from the Calcasieu Pass 2 facility. Based on our initial analyses, it is not expected to have any material impact on EnBW.

In agreement with the Supervisory Board of EnBW, Andreas Schell stepped down from his position as Chairman of the Board of Management with effect from the end of 8 March 2024. The Supervisory Board approved this decision in an extraordinary meeting on 8 March 2024. At the same time, the Supervisory Board appointed Dr. Georg Stamatelopoulos as the new Chairman of the Board of Management. He will still be responsible for the remit "Sustainable Generation Infrastructure" until his successor is appointed. Dr. Georg Stamatelopoulos has been appointed Chairman of the Board of Management for the term of his existing mandate, which runs until the end of 31 May 2029. Furthermore, the Supervisory Board has appointed Thomas Kusterer, who has been Chief Financial Officer of EnBW since 2011, as Deputy Chairman of the Board of Management. Thomas Kusterer has also been appointed Deputy Chairman until the end of his existing mandate.

Karlsruhe, 11 March 2024

EnBW Energie Baden-Württemberg AG

[redacted]

Independent auditor's report

To EnBW Energie Baden-Württemberg AG

Report on the audit of the consolidated financial statements and of the group management report

Opinions

We have audited the consolidated financial statements of EnBW Energie Baden-Württemberg AG, Karlsruhe, and its subsidiaries (the Group), which comprise the income statement and statement of comprehensive income for the fiscal year from 1 January to 31 December 2023, the balance sheet as at 31 December 2023, the cash flow statement and the statement of changes in equity for the fiscal year from 1 January to 31 December 2023, and the notes to the 2023 financial statements of the EnBW Group, including a summary of significant accounting policies. In addition, we have audited the group management report of EnBW Energie Baden-Württemberg AG, which was combined with the management report of EnBW Energie Baden-Württemberg AG, for the fiscal year from 1 January to 31 December 2023. In accordance with the German legal requirements, we have not audited the content of the parts of the group management report referred to in the appendix to the auditor's report and the company information listed there that is provided outside the Annual Report and is referenced in the group management report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB ["Handelsgesetzbuch": German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at 31 December 2023 and of its financial performance for the fiscal year from 1 January to 31 December 2023, and
- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the group management report does not extend to the content of the parts of the group management report listed in the appendix to the auditor's report.

Pursuant to Sec. 322 (3) Sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and the EU Audit Regulation (No. 537/2014, referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Art. 10 (2) f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Art. 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Key audit matters in the audit of the consolidated financial statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the fiscal year from 1 January to 31 December 2023. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon; we do not provide a separate opinion on these matters.

Below, we describe what we consider to be the key audit matters:

1. Valuation of the cash-generating unit conventional power plants

Reasons why the matter was determined to be a key audit matter

We classified the valuation of the cash-generating unit conventional power plants as a key audit matter because the determination of the recoverable amount is highly dependent on the assessment of future cash flows by the executive directors and in our view poses an elevated risk of material misstatement with respect, in particular, to the regular adjustment to assumptions for the short, medium and long-term planning forecasts. In order to create these planning forecasts, it is necessary to derive scenarios that describe potential future developments as realistically as possible. The scenarios derived by the executive directors differ primarily regarding the degree of climate protection and the sustainable economic growth that is achievable in the long term. The judgmental assumptions include, in particular, the projected cash flows based on pricing assumptions for fuel, CO_2 allowances and electricity, as well as the discount rates used and the determination of the remaining service lives of the coal power plants, which are especially influenced by the law for reducing and ending coal-fired generation and amending other laws (Coal Phaseout Act), the decision issued by the German Federal Constitutional Court on climate protection on 24 March 2021 and the implementation of the EU Green Deal into effective directives. In addition, the war between Russia and Ukraine has changed the energy sector framework. Membership of the Science Based Targets initiative (SBTi) also provides for the ongoing refinement of EnBW's goals for climate neutrality based on remaining greenhouse gas budgets for the various emission categories, which entails a further reduction of coal-fired generation capacity in the future. In order to achieve EnBW's climate protection targets, the planned coal phaseout was brought forward to 2028.

Auditor's response

As part of our audit procedures, we analyzed the valuation process, the valuation model including the associated inputs and the accounting principles used to determine the recoverable amount of the cash-generating unit conventional power plants. The short and medium-term pricing assumptions are derived from liquid markets, contracts for forward transactions and current market data. We evaluated these pricing forecasts made on the basis of the budget prepared by the Board of Management and approved by the Supervisory Board, as well as the medium-term plans prepared by the Board of Management and acknowledged by the Supervisory Board. In addition, we assessed the plausibility of the derived pricing assumptions based on our own valuation analyses using market data. The long-term price assumptions are derived using different scenarios, whereby the key parameters are the achievement of certain climate protection targets and the development of prices for gas, coal, oil and CO_2 allowances. These pricing assumptions have a significant influence on the relative profitability of the individual generation capacities in the different scenarios. An economic market model is used to derive the assumptions for electricity prices. We discussed the key assumptions, scenarios and their weighting with those responsible for planning and analyzed them based on external market assessments and a comparison with the assumptions made in the prior year. We also involved our own energy market specialists in the process for evaluating the pricing assumptions. Other influencing factors are the costs for the power plants that depend on their planned remaining service lives and which we evaluated as part of the audit by, among other things, questioning those responsible for planning and making comparisons with the inspection plans. To assess the remaining service lives of the coal power plants applied in the valuation, we tested the approach and interpretation of the executive directors to the phaseout path taking into account the current energy policy conditions and EnBW's strategy for climate neutrality. We investigated the process for determining other key valuation assumptions such as the discount rate and the market risk premium on the basis of an analysis of market indicators and with the help of our valuation specialists. We also checked the mathematical accuracy of the valuation model and the calculation of the reported impairment losses.

Our audit procedures did not lead to any reservations concerning the valuation of the cash-generating unit conventional power plants.

Reference to related disclosures

With regard to the recognition and measurement principles applied in the valuation of the cash-generating unit conventional power plants, we refer to the disclosures in the notes to the consolidated financial statements in the section “Significant accounting policies” under “Property, plant and equipment” and in the section “Exercise of judgment and estimates when applying accounting policies” under “Property, plant and equipment”, which explain the key judgments made when valuing the power plants. Please refer to the information in the notes to the consolidated financial statements in note (6) “Amortization and depreciation” for explanations of the reported impairment losses.

2. Valuation of the individual EnBW offshore wind farms

Reasons why the matter was determined to be a key audit matter

We classified the valuation of the cash-generating units of the individual EnBW offshore wind farms as a key audit matter because the determination of the recoverable amounts is highly dependent on the assessment of future cash flows by the executive directors and in our view poses an elevated risk of material misstatement with respect, in particular, to the regular adjustment to assumptions for the short, medium and long-term planning forecasts. In order to create these planning forecasts, it is necessary to derive scenarios that describe potential future developments as realistically as possible. The scenarios derived by the executive directors differ primarily regarding the degree of climate protection and the sustainable economic growth that is achievable in the long term. The judgmental assumptions include the projected cash flows, discount rates used and the underlying wind forecasts. In addition, the diminishing number of operating years subject to EEG [“Erneuerbare-Energien-Gesetz”: German Renewable Energy Act] funding in the future has an effect on the value of individual offshore wind farms. The assessments made by the executive directors with respect to the judgmental assumptions have a significant influence on the valuation.

Auditor’s response

As part of our audit procedures, we analyzed the valuation process, the valuation model including the associated inputs and the accounting principles used to determine the recoverable amounts of the cash-generating units of the individual EnBW offshore wind farms. The short and medium-term pricing assumptions are derived from liquid markets, contracts for forward transactions and current market data. We evaluated these pricing forecasts made on the basis of the budget prepared by the Board of Management and approved by the Supervisory Board, as well as the medium-term plans prepared by the Board of Management and acknowledged by the Supervisory Board. In addition, we assessed the plausibility of the derived pricing assumptions based on our own valuation analyses using market data. The long-term price assumptions are derived using different scenarios, which differ in terms of the achievement of certain climate protection targets. An economic market model is used to derive the assumptions for electricity prices. We discussed the key assumptions, scenarios and their weighting with those responsible for planning and analyzed them based on external market assessments and a comparison with the assumptions made in the prior year. We also involved our own energy market specialists in the process for evaluating the pricing assumptions. In order to assess the wind forecasts on which the valuations are based, we discussed and obtained an understanding of the main reasons for deviations between the forecasts and the actual wind conditions in the past fiscal year for the individual EnBW offshore wind farms with those responsible for planning, applying our experience in the sector. We investigated the process for determining other key valuation assumptions such as the discount rate and the market risk premium on the basis of an analysis of market indicators and with the help of our valuation specialists. We also checked the mathematical accuracy of the valuation model and the calculation of the reported impairment losses.

Our audit procedures did not lead to any reservations concerning the valuation of the cash-generating units of the individual EnBW offshore wind farms.

Reference to related disclosures
With regard to the recognition and measurement principles applied in the valuation of the individual EnBW offshore wind farms, we refer to the disclosures in the notes to the consolidated financial statements in the section "Significant accounting policies" under "Property, plant and equipment" and the section "Exercise of judgment and estimates when applying accounting policies", which explain the key judgments made when valuing the power plants. Please refer to the information in the notes to the consolidated financial statements in note (6) "Amortization and depreciation" for explanations of the reported impairment losses.

3. Recognition and measurement of energy trades

Reasons why the matter was determined to be a key audit matter
The energy trading business unit at EnBW is responsible for central access to the relevant markets along the value added chain for electricity, gas, fuels and emission allowances and sells the electricity generated by the renewable energy and conventional power plants. The product portfolio comprises physical and financial trading products on various stock exchanges and the over-the-counter market for electricity, gas, coal, freight, oil, LNG and CO_2 allowances, as well as structured contracts and gas storage. Additionally, long-term renewable power purchase agreements are used and regularly sold with guarantees of origin.

We classified the recognition and measurement of energy trades as a key audit matter because the complexity of the accounting for certain energy trades as derivatives according to IFRS 9 or as executory contracts according to IAS 37 entails uncertainties and the use of judgment. The latter also includes transactions that are to be settled physically, which do not come under the scope of IFRS 9 in accordance with the own use exemption. The large trading volume and the high volatility on the energy trading markets leads to an elevated risk of material misstatement.

The contracts concluded by the energy trading business unit are derivative financial instruments, leases or contracts for the purchase or sale of non-financial items (executory contracts). The transactions accounted for as derivative financial instruments are entered into as hedges in some cases to hedge price risks from future sales and procurement transactions. Leases are accounted for according to IFRS 16. Executory contracts must be regularly assessed according to IAS 37 to determine any need for provisions for onerous contracts. The valuation of standard products is based on prices on futures markets (exchanges, broker platforms), while the valuation of complex contracts is carried out using the Company's own valuation models.

Auditor's response
As part of our audit procedures, we analyzed the energy trading organization at the Company and evaluated the internal control system across all trading and valuation processes. In particular, we assessed the structure and execution of trades, the processes used to evaluate standard trading products and complex derivatives, the issuing and verification of incoming and outgoing invoices and the calculation of invoice amounts from individual transactions and, where relevant, their netting.

Furthermore, we assessed the structures and processes as well as the risk management and risk controlling processes including the trading systems used. In the process, we also assessed compliance with the segregation of functions and the settlement and valuation of energy trades. During the evaluation of the effectiveness of the internal control system in the energy trading business unit, we tested the established controls.

As part of our audit procedures on derivatives and the requirements placed on liquidity management, we obtained bank confirmations for the clearing accounts and external balance confirmations for over-the-counter transactions as audit evidence for their existence and amount. To assess the foreign currency derivatives that were entered into for the procurement of fuels (especially coal and LNG), we revalued foreign currency derivatives and assessed the hedging relationship using documentation from the trading business.

To assess the accounting for transactions that are to be settled physically, which do not come under the scope of IFRS 9 in accordance with the own use exemption, we examined the implemented processes and assessed the audit evidence presented to us by those responsible for the accounting. This included, in particular, a contract analysis, the separation of portfolios and an assessment of whether a possible net settlement had been achieved. Furthermore, we tested – both for various accounting portfolios and also for individual, separately managed electricity and gas procurement contracts – the assessments of the accountants to see whether there were any onerous contracts existing on the reporting date for which it was necessary to recognize provisions for potential losses pursuant to IAS 37. We checked the allocation of hedging instruments used to hedge energy price risks from future sales and procurement transactions based on the documentation for the hedges consisting of the hedged transactions and the hedging instruments.

In order to assess the measurement of financial instruments according to IFRS 13, we tested the price curves for standard trading products. We checked observable prices used as inputs for the energy trading valuation model against information available externally (prices from exchanges and broker platforms). We revalued standard trading products and products with contract-specific components on a sample basis and evaluated whether the valuation of the transactions recognized met our expectations. To assess complex energy trades, the energy trading department uses internally developed valuation models. Complex stochastic models are necessary, for example, to value flexible contracts such as swing options and storage capacities. Our internal valuation specialists were brought in to analyze these models and also assess their consistency and market conformity. Our evaluation also covered whether all of the contractual components relevant to the valuation were taken into account in the respective valuation model.

Our audit procedures did not lead to any reservations concerning the recognition and measurement of energy trades.

Reference to related disclosures

With regard to the recognition and measurement principles applied in the accounting for energy trades, we refer to the disclosures in the notes to the consolidated financial statements in the section "Significant accounting policies" under "Derivatives" and the section "Exercise of judgment and estimates when applying accounting policies", which explain the key judgments made in accounting for derivatives and executory contracts. Information on energy trading and its impact on the consolidated financial statements can be found in the notes to the consolidated financial statements in note (26) "Accounting for financial instruments".

4. Valuation of provisions relating to nuclear power

Reasons why the matter was determined to be a key audit matter

We classified the valuation of provisions relating to nuclear power as a key audit matter because the recognition and the subsequent valuation are highly dependent on the estimates and assumptions of the executive directors. We therefore believe there is an elevated risk of material misstatement. The assumptions subject to judgment include in particular the decommissioning and disposal costs, including the rate of increase in costs, that are primarily derived from sector-specific appraisals by external experts. In addition, the determination of the term-specific discount rates has a significant impact on the valuation. Additionally, the temporary extension of operations and the prolonged fuel cycle of the Neckarwestheim 2 plant until mid-April 2023 also affected the planning for the dismantling of the nuclear power plant.

Auditor's response

As part of our audit procedures, we analyzed the process implemented and the recognition and measurement requirements for the valuation of provisions relating to nuclear power and obtained an understanding of the processes installed by the executive directors. We also evaluated the significant assumptions underlying the valuation and the valuation method. We examined the valuation based on the external appraisals used to derive significant assumptions. We also assessed the professional competence and objectivity of the independent external experts for the cost estimate. We compared the specific costs used in the valuation model for selected decommissioning and disposal activities with the cost estimates of the external experts. We tested the mathematical accuracy of the valuation model and assessed the applied cost increases using the external appraisals and the Company's analyses based on its experience of cost increases in prior fiscal years. In addition, we checked the derivation of the interest rates for the respective terms using market data.

Our audit procedures did not lead to any reservations concerning the valuation of provisions relating to nuclear power.

Reference to related disclosures

With regard to the recognition and measurement principles applied for the valuation of the provisions relating to nuclear power, we refer to the disclosures in the notes to the consolidated financial statements in the section "Significant accounting policies" under "Provisions relating to nuclear power". Information on the development of provisions, on significant valuation assumptions and valuation inputs and their sensitivities can be found in the section "Exercise of judgment and estimates when applying accounting policies" and under note (21) "Provisions".

5. Accounting for risks in the Smart Infrastructure for Customers segment with regard to the biomethane and battery storage business

Reasons why the matter was determined to be a key audit matter

We classified the accounting for risks in the Smart Infrastructure for Customers segment with regard to the biomethane and battery storage business as a key audit matter because these are financial reporting matters that are highly dependent on the executive directors' assessment of the strategic alignment, the associated continuation of operating activities as well as the supply chains, which affects future cash flows. This also gives rise to legal risks, particularly in the area of damages and insolvency law. In the biomethane business, protective shield proceedings were initiated at bmp greengas GmbH at the end of May 2023, as significant market shifts and the war in Ukraine have made it impossible to supply the volumes of biomethane agreed. On 1 August 2023, Karlsruhe Local Court subsequently launched self-administration insolvency proceedings for bmp greengas GmbH. On 12 December 2023, the creditors' meeting accepted the insolvency plan on the basis of a takeover bid by EnBW. For the consolidated financial statements, there is a risk that the effects on earnings from the deconsolidation of bmp greengas GmbH, the accounting for impairment of receivables and the related disclosures in the notes to the consolidated financial statements are not appropriately recognized. In the battery storage business, SENEC GmbH decided to replace the majority of the existing storage modules with a new battery technology based on lithium iron phosphate in November 2023 due to incidents with lithium ion storage modules. As a precautionary measure, storage facilities of a specific module generation have been placed in conditioning mode until they are replaced. For the consolidated financial statements, there is a risk of incorrect accounting for the costs caused by the conditioning mode, the replacement of storage modules and legal risks.

Auditor's response

In the course of our audit, we regularly discussed the current developments and causes as well as the executive directors' assessments of the operational, technical and legal risks with the relevant general managers of the biomethane and battery storage business, the Company's legal department and the external lawyers and independent experts engaged by the executive directors. We scrutinized and assessed the explanations as well as the information and evidence received. With the involvement our own legal experts, we reconciled the confirmations received from external lawyers with the risk assessment made by the executive directors.

During our audit of the risks relating to the biomethane business and the deconsolidation of bmp greengas GmbH, we assessed the insolvency application together with the independent expert's report on compliance with the requirements of Sec. 270d InsO ["Insolvenzordnung": German Insolvency Code]. We also evaluated the statement on the loss of control and deconsolidation prepared by the Company. We assessed the calculation of the deconsolidation effect on accrual accounting and the assessment of the recoverability of receivables, including a legal assessment by EnBW. We also analyzed the accounting effects from the supply chain. We obtained an understanding of the deconsolidation entries and the related disclosures in the notes to the consolidated financial statements.

As part of our audit of the risks relating to the battery storage business, we assessed the measures and costs of the shift to a new battery technology. In this context, we assessed the report obtained from the executive directors on the corporate and financial planning of the battery storage business and the implemented financing measures. To assess the provisions for the replacement of the storage modules and systems and the realignment of the supply chain, we obtained, among other things, reports, deliverables and statements from independent experts as audit evidence. Our audit procedures also included assessing the competence, skills and objectivity of the independent experts and the suitability of the appraisals commissioned by the executive directors as audit evidence. We obtained an understanding of management's methodology and the key assumptions underlying the cost estimates and assessed the impairment of property, plant and equipment and inventories as well as the claims from the downstream supply chain. We also assessed the impairment test for the goodwill of the battery storage business with the involvement of our own valuation specialists.

Our audit procedures did not lead to any reservations concerning the accounting for risks in the Smart Infrastructure for Customers segment with regard to the biomethane and battery storage business.

Reference to related disclosures

With regard to the recognition and measurement principles applied for the accounting for risks in the Smart Infrastructure for Customers segment with regard to the biomethane and battery storage business, we refer to the disclosures in the notes to the consolidated financial statements in the section "Significant accounting policies" under "Provisions" and in the section "Exercise of judgment and estimates when applying accounting policies" under "Warranty provisions and impact of the war between Russia and Ukraine". Please refer to the information in the notes to the consolidated financial statements in section "Deconsolidation of fully consolidated entities 2023" as well as in note (5) "Other operating expenses", (17) "Inventories" and (21) "Provisions" for explanations of the accounting effects.

Emphasis of matter paragraph – immanent risk due to uncertainties regarding the legal conformity of the interpretation of the EU Taxonomy Regulation

We draw attention to the executive directors' comments in the "EU taxonomy" section of the group management report, which was combined with the management report of EnBW Energie Baden-Württemberg AG, where it is stated that the EU Taxonomy Regulation and the Delegated Acts adopted thereunder contain wording and terms that are still subject to considerable interpretation uncertainties and for which clarifications have not yet been published in every case. The executive directors describe how they interpreted the EU Taxonomy Regulation and the Delegated Acts adopted thereunder. Due to the immanent risk that undefined legal terms may be interpreted differently, the legal conformity of the interpretation is subject to uncertainties. Our opinion on the group management report, which was combined with the management report of EnBW Energie Baden-Württemberg AG, is not modified in this respect.

Other information

The Supervisory Board is responsible within the meaning of ISA [DE] 720 (Revised) for the Report of the Supervisory Board in the Annual Report 2023. The executive directors and the Supervisory Board are responsible for the declaration pursuant to Sec. 161 AktG ["Aktiengesetz": German Stock Corporation Act] on the German Corporate Governance Code, which is part of the declaration of corporate management. In all other respects, the executive directors are responsible for the other information. The other information comprises the parts of the Annual Report mentioned in the appendix.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the executive directors and the Supervisory Board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted in the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB and for the preparation of the consolidated financial statements that, in compliance with these requirements, give a true and fair view of the assets and liabilities, financial position and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting a material misstatement resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other legal and regulatory requirements

Report on the assurance on the electronic rendering of the consolidated financial statements and the group management report prepared for publication purposes in accordance with Sec. 317 (3a) HGB

Opinion

We have performed assurance work in accordance with Sec. 317 (3a) HGB to obtain reasonable assurance about whether the rendering of the consolidated financial statements and the group management report (hereinafter the "ESEF documents") contained in the file ENBW_AG_KAuKLB_ESEF-2023-12-31.zip and prepared for publication purposes complies in all material respects with the requirements of Sec. 328 (1) HGB for the electronic reporting format ("ESEF format"). In accordance with German legal requirements, this assurance work extends only to the conversion of the information contained in the consolidated financial statements and the group management report into the ESEF format and therefore relates neither to the information contained within these renderings nor to any other information contained in the file identified above.

In our opinion, the rendering of the consolidated financial statements and the group management report contained in the file identified above and prepared for publication purposes complies in all material respects with the requirements of Sec. 328 (1) HGB for the electronic reporting format. Beyond this assurance opinion and our audit opinions on the accompanying consolidated financial statements and the accompanying group management report for the fiscal year from 1 January to 31 December 2023 contained in the "Report on the audit of the consolidated financial statements and of the group management report" above, we do not express any assurance opinion on the information contained within these renderings or on the other information contained in the file identified above.

Basis for the opinion

We conducted our assurance work on the rendering of the consolidated financial statements and the group management report contained in the file identified above in accordance with Sec. 317 (3a) HGB and the IDW Assurance Standard: Assurance on the Electronic Rendering of Financial Statements and Management Reports Prepared for Publication Purposes in Accordance with Sec. 317 (3a) HGB (IDW AsS 410 (06.2022)). Our responsibility in accordance therewith is further described in the "Group auditor's responsibilities for the assurance work on the ESEF documents" section. Our audit firm applies the IDW Standard on Quality Management 1: Requirements for Quality Management in the Audit Firm (IDW QS 1).

Responsibilities of the executive directors and the Supervisory Board for the ESEF documents

The executive directors of the Company are responsible for the preparation of the ESEF documents including the electronic rendering of the consolidated financial statements and the group management report in accordance with Sec. 328 (1) Sentence 4 No. 1 HGB and for the tagging of the consolidated financial statements in accordance with Sec. 328 (1) Sentence 4 No. 2 HGB.

In addition, the executive directors of the Company are responsible for such internal control as they have determined necessary to enable the preparation of ESEF documents that are free from material intentional or unintentional non-compliance with the requirements of Sec. 328 (1) HGB for the electronic reporting format.

The Supervisory Board is responsible for overseeing the process for preparing the ESEF documents as part of the financial reporting process.

Group auditor's responsibilities for the assurance work on the ESEF documents

Our objective is to obtain reasonable assurance about whether the ESEF documents are free from material intentional or unintentional non-compliance with the requirements of Sec. 328 (1) HGB. We exercise professional judgment and maintain professional skepticism throughout the assurance work. We also:

- Identify and assess the risks of material intentional or unintentional non-compliance with the requirements of Sec. 328 (1) HGB, design and perform assurance procedures responsive to those risks, and obtain assurance evidence that is sufficient and appropriate to provide a basis for our assurance opinion.
- Obtain an understanding of internal control relevant to the assurance on the ESEF documents in order to design assurance procedures that are appropriate in the circumstances, but not for the purpose of expressing an assurance opinion on the effectiveness of these controls.
- Evaluate the technical validity of the ESEF documents, i.e., whether the file containing the ESEF documents meets the requirements of Commission Delegated Regulation (EU) 2019/815, in the version in force at the date of the financial statements, on the technical specification for this file.
- Evaluate whether the ESEF documents enable an XHTML rendering with content equivalent to the audited consolidated financial statements and to the audited group management report.
- Evaluate whether the tagging of the ESEF documents with Inline XBRL technology (iXBRL) in accordance with the requirements of Arts. 4 and 6 of Commission Delegated Regulation (EU) 2019/815, in the version in force at the date of the financial statements, enables an appropriate and complete machine-readable XBRL copy of the XHTML rendering.

Further information pursuant to Art. 10 of the EU Audit Regulation

We were elected as group auditor by the Annual General Meeting on 3 May 2023. We were engaged by the Supervisory Board on 28 October 2023. We have been the group auditor of EnBW Energie Baden-Württemberg AG without interruption since fiscal year 2019.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Art. 11 of the EU Audit Regulation (long-form audit report).

Other matter – use of the auditor's report

Our auditor's report must always be read together with the audited consolidated financial statements and the audited group management report as well as the assured ESEF documents. The consolidated financial statements and the group management report converted to the ESEF format – including the versions to be published in the Unternehmensregister [German Company Register] – are merely electronic renderings of the audited consolidated financial statements and the audited group management report and do not take their place. In particular, the ESEF report and our assurance opinion contained therein are to be used solely together with the assured ESEF documents made available in electronic form.

German Public Auditor responsible for the engagement

The German Public Auditor responsible for the engagement is Prof. Dr. Steffen Kuhn.

Stuttgart, 11 March 2024

EY GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft

Prof. Dr. Kuhn	Müller
Public Auditor	Public Auditor

Appendix to the auditor's report:

1. Parts of the group management report whose content is not audited

We did not audit the content of the following parts of the group management report that are considered "other information":

- The declaration of corporate management which is published on the website stated in the group management report
- The chapter "Appropriateness and effectiveness of the risk management system and the internal control system (iRM)" in the report on opportunities and risks of the group management report.

2. Further other information

The other information also comprises other parts to be included in the Annual Report, of which we obtained a copy prior to issuing this auditor's report, in particular the sections:

- "Performance indicators of the EnBW Group"
- "EnBW at a glance"
- "Service"
- "Letter to Shareholders"
- "Report of the Supervisory Board (condensed)"
- "The Board of Management"
- "Declaration of the legal representatives" (for the annual and consolidated financial statements and combined management report)
- "Declaration of corporate management"
- "Corporate bodies"
- "Further information"

but not the consolidated financial statements, not the group management report disclosures whose content is audited and not our auditor's report thereon.

3. Company information outside the Annual Report referenced in the group management report

Besides the cross-reference under "1. Parts of the group management report whose content is not audited", the group management report contains other cross-references to websites of the Group. We have not audited the contents of the information to which the latter cross-references refer.

Corporate bodies

The Supervisory Board

Members

Status
- Active member
- Inactive member

As of 11 March 2024

Further information on our **Supervisory Board** can be found here.

Online ↗

- **Lutz Feldmann, Bochum**
  Independent business consultant
  Chairman of the Supervisory Board of the EnBW Group

- **Achim Binder, Stuttgart**
  Chairman of the Group works council for the EnBW Group, Chairman of the central works council "grids sector" of EnBW Energie Baden-Württemberg AG and Chairman of the regional service works council of Netze BW GmbH, Stuttgart
  Deputy Chairman of the Supervisory Board of Netze BW GmbH
  Deputy Chairman of the Supervisory Board of the EnBW Group

- **Dr. Danyal Bayaz, Stuttgart**
  Minister for Finance of the Federal State of Baden-Württemberg

- **Dr. Dietrich Birk, Göppingen**
  Managing Director of the Regional Association for Baden-Württemberg at the Verband Deutscher Maschinen- und Anlagenbau e. V. Baden-Württemberg (VDMA)

- **Stefanie Bürkle, Sigmaringen**
  District Administrator of the Sigmaringen district

- **Stefan Paul Hamm, Gerlingen**
  Deputy Regional Head of Department A for Financial Services, Communication and Technology, Culture, Utilities and Waste Management, ver.di state district Baden-Württemberg

- **Michaela Kräutter, Stutensee**
  Union Secretary for Financial Services, Communication and Technology, Culture, Utilities and Waste Management and State Union Secretary for Employees, ver.di Central Baden/North Black Forest district

- **Christina Ledong, Leipzig**
  Second Deputy Chairwoman of the Group works council for the EnBW Group, Chairwoman of the Group works council for VNG AG and Chairwoman of the joint works council for VNG AG, ONTRAS Gastransport GmbH, VNG Gasspeicher GmbH and VNG Handel &Vertrieb GmbH

- **Klarissa Lerp, Düsseldorf**
  Member of the Group works council for the EnBW Group, Chairwoman of the works council and First Deputy Chairwoman of the Supervisory Board at Stadtwerke Düsseldorf AG and Deputy Chairwoman of the Supervisory Board of Netzgesellschaft Düsseldorf mbH

- **Dr. Hubert Lienhard, Heidenheim an der Brenz**
  Supervisory Board Member for various German companies

- **Bernad Lukacin, Karlsdorf-Neuthard**
  Spokesperson for specialized tasks in the "market sector" of EnBW Energie Baden-Württemberg AG
  Member of the Group works council for the EnBW Group, Chairman of the central works council for the "market sector" and Chairman of the Karlsruhe works council for the "market sector" of EnBW Energie Baden-Württemberg AG

- **Marika Lulay, Heppenheim**
  Chairwoman of the Managing Directors (CEO) and member of the Board of Directors at GFT Technologies SE, Stuttgart

- **Dr. Wolf-Rüdiger Michel, Rottweil**
  District Administrator of the Rottweil district

- **Thorsten Pfirmann, Neuburg am Rhein**
  Full-time works council representative in the "generation sector" of EnBW Energie Baden-Württemberg AG

- **Gunda Röstel, Flöha**
  Commercial Director of Stadtentwässerung Dresden GmbH and Authorized Officer of Gelsenwasser AG

- **Joachim Rudolf, Plochingen**
  Deputy Chairman of the Group Works Council
  Chairman of AK Energie
  Chairman of the central works council in the "generation sector" of EnBW Energie Baden-Württemberg AG

Status

- Active member
- Inactive member

As of 11 March 2024

Further information on our **Supervisory Board** can be found here.

Online ↗

- **Heiner Scheffold, Ehingen**
  District Administrator of the Alb-Donau district
  (member of the Supervisory Board since 14 May 2023)

- **Harald Sievers, Ravensburg**
  District Administrator of the Ravensburg district

- **Ulrike Weindel, Karlsruhe**
  Member of the Group works council for the EnBW Group as well as Chairwoman of the central works council for the "functional units" and Chairwoman of the Karlsruhe works council for the "functional units" of EnBW Energie Baden-Württemberg AG, Karlsruhe

- **Dr. Bernd-Michael Zinow, Karlsruhe**
  Head of the functional unit Legal Services, Auditing, Compliance and Regulation (General Counsel) at EnBW Energie Baden-Württemberg AG, Karlsruhe

- **Lothar Wölfle, Friedrichshafen**
  District Administrator of the Lake Constance district until 13 May 2023
  (member of the Supervisory Board until 13 May 2023)

Status
- Active member
- Inactive member

As of 11 March 2024

Further information on our **Supervisory Board** can be found here.

Online ↗

Committees

Personnel committee

- Lutz Feldmann
  Chairman

- Dr. Danyal Bayaz
- Achim Binder
- Stefanie Bürkle (since 14 May 2023)
- Stefan Paul Hamm
- Joachim Rudolf

- Lothar Wölfle (until 13 May 2023)

Finance and investment committee

- Lutz Feldmann
  Chairman

- Dr. Danyal Bayaz
- Achim Binder
- Dr. Dietrich Birk
- Stefanie Bürkle (since 14 May 2023)
- Stefan Paul Hamm
- Joachim Rudolf
- Dr. Bernd-Michael Zinow

- Lothar Wölfle (until 13 May 2023)

Nomination committee

- Lutz Feldmann
  Chairman

- Dr. Danyal Bayaz
- Dr. Dietrich Birk
- Stefanie Bürkle (since 14 May 2023)
- Dr. Wolf-Rüdiger Michel
- Gunda Röstel

- Lothar Wölfle (until 13 May 2023)

Audit committee

- Gunda Röstel
  Chairwoman

- Michaela Kräutter
- Dr. Hubert Lienhard
- Bernad Lukacin
- Dr. Wolf-Rüdiger Michel
- Thorsten Pfirmann
- Heiner Scheffold (since 14 May 2023)
- Ulrike Weindel

- Stefanie Bürkle (until 13 May 2023)

Digitalization committee (since 1 January 2019)

- Dr. Hubert Lienhard
  Chairman

- Christina Ledong
- Bernad Lukacin
- Marika Lulay
- Harald Sievers
- Ulrike Weindel

Mediation committee (committee pursuant to section 27 (3) German Co-determination Act (MitbestG))

- Lutz Feldmann
  Chairman

- Dr. Danyal Bayaz
- Achim Binder
- Klarissa Lerp

Ad hoc committee (since 7 June 2010)

- Dr. Bernd-Michael Zinow
  Chairman

- Achim Binder
- Gunda Röstel
- Harald Sievers

Special committee (29 September 2022 to 3 May 2023)

- Lutz Feldmann
  Chairman

- Dr. Danyal Bayaz
- Achim Binder
- Stefan Paul Hamm
- Gunda Röstel
- Joachim Rudolf
- Lothar Wölfle
- Dr. Bernd-Michael Zinow

Offices held by members of the Board of Management

Status

- Active member
- Inactive member

Disclosures of office holders pursuant to section 285 no. 10 German Commercial Code (HGB)

– Membership in other statutory supervisory boards
– Membership in comparable domestic and foreign control bodies of business enterprises

As of 11 March 2024

Further information on our **Board of Management** can be found here.

Online ↗

- **Dr. Georg Stamatelopoulos**
  - EnBW Kernkraft GmbH (Chairman)
  - illwerke vkw AG
  - Schluchseewerk AG (Chairman)
  - Grosskraftwerk Mannheim AG

- **Thomas Kusterer**
  - Energiedienst AG (Chairman) (until 4 October 2023)
  - naturenergie hochrhein AG (Chairman) (since 5 October 2023)
  - SICK AG

  - Energiedienst Holding AG (President of the Administrative Board)

- **Dirk Güsewell**
  - Netze BW GmbH (Chairman)
  - terranets bw GmbH (Chairman)
  - TransnetBW GmbH (Chairman)
  - VNG AG (Chairman)

- **Colette Rückert-Hennen**
  - Stadtwerke Düsseldorf AG (Chairwoman)

  - Pražská energetika a.s. (Deputy Chairwoman)

- **Andreas Schell (until 8 March 2024)**

Other offices held by members of the Supervisory Board

Status
- Active member
- Inactive member

Disclosures of office holders pursuant to section 285 no. 10 German Commercial Code (HGB)
– Membership in other statutory supervisory boards
– Membership in comparable domestic and foreign control bodies of business enterprises

As of 11 March 2024

Further information on our **Supervisory Board** can be found here.

Online ↗

- **Lutz Feldmann**
  – Villa Claudius gGmbH (Chairman) (until 19 June 2023)
  – Thyssen'sche Handelsgesellschaft mbH (Chairman)
  – OMV AG, Wien (Chairman) (since 31 May 2023)

- **Achim Binder**
  – Netze BW GmbH (Deputy Chairman)

- **Dr. Danyal Bayaz**
  – Baden-Württemberg Stiftung gGmbH
  – Landesbank Baden-Württemberg, Anstalt des öffentlichen Rechts (Deputy Chairman)
  – Landeskreditbank Baden-Württemberg, Förderbank, Anstalt des öffentlichen Rechts (Chairman of the Administrative Board)
  – Cyber Valley GmbH (Deputy Chairman)

- **Dr. Dietrich Birk**
  – Netze BW GmbH
  – SRH Holding (SdbR)

  – Green Hydrogen Technology GmbH

- **Stefanie Bürkle**
  – SWEG Südwestdeutsche Landesverkehrs-GmbH

  – Hohenzollerische Landesbank Kreissparkasse Sigmaringen, Anstalt des öffentlichen Rechts (Chairwoman of the Administrative Board)
  – Flugplatz Mengen-Hohentengen GmbH (Chairwoman)
  – SRH Kliniken Landkreis Sigmaringen GmbH (Chairwoman)
  – Sparkassenverband Baden-Württemberg, Anstalt des öffentlichen Rechts
  – Verkehrsverbund Neckar-Alb-Donau GmbH (naldo) (Chairwoman)
  – Wirtschaftsförderungs- und Standortmarketinggesellschaft Landkreis Sigmaringen mbH (Chairwoman)
  – Zweckverband Oberschwäbische Elektrizitätswerke (Deputy Chairwoman and since 13 March 2023 Chairwoman)
  – Zweckverband Thermische Abfallverwertung Donautal (TAD) (Deputy Chairwoman)

- **Stefan Paul Hamm**
  – Netze BW GmbH

- **Michaela Kräutter**
  – EnBW Kernkraft GmbH
  – Netze BW GmbH

- **Christina Ledong**
  – VNG AG (Second Deputy Chairwoman)

- **Klarissa Lerp**
  – Stadtwerke Düsseldorf AG (Deputy Chairwoman)
  – Netzgesellschaft Düsseldorf mbH (Deputy Chairwoman)

  – RheinWerke GmbH

- **Dr. Hubert Lienhard**
  – Heraeus Holding GmbH
  – Siemens Energy AG
  – SMS group GmbH
  – TransnetBW GmbH
  – KAEFER SE & Co. KG

  – Heitkamp & Thumann GmbH & Co. KG
  – Siemens Gas and Power Management GmbH

- **Bernad Lukacin**

- **Marika Lulay**
  – GFT Technologies SE
  – Aareal Bank AG

Status

- **Active member**
- **Inactive member**

Disclosures of office holders pursuant to section 285 no. 10 German Commercial Code (HGB)

– Membership in other statutory supervisory boards
– Membership in comparable domestic and foreign control bodies of business enterprises

As of 11 March 2024

Further information on our **Supervisory Board** can be found here.

Online ↗

- **Dr. Wolf-Rüdiger Michel**
  - Kreisbaugenossenschaft Rottweil eG (Chairman)
  - SV SparkassenVersicherung Holding AG

  - Komm.ONE, Anstalt des öffentlichen Rechts (formerly ITEOS)
  - Kreissparkasse Rottweil, Anstalt des öffentlichen Rechts (Chairman)
  - Schwarzwald Tourismus GmbH
  - SMF Schwarzwald Musikfestival gGmbH
  - Sparkassen-Beteiligungen Baden-Württemberg GmbH
  - Sparkassenverband Baden-Württemberg, Körperschaft des öffentlichen Rechts
  - Wirtschaftsförderungsgesellschaft Schwarzwald-Baar-Heuberg mbH
  - Zweckverband Bauernmuseum Horb/Sulz
  - Zweckverband Oberschwäbische Elektrizitätswerke (Deputy Chairman)
  - Zweckverband Verkehrsverbund Schwarzwald-Baar-Heuberg (Deputy Chairman)
  - Zweckverband RBB Restmüllheizkraftwerk Böblingen (Deputy Chairman)
  - ZTN-Süd Warthausen
  - Unfallkasse Baden-Württemberg (UKBW) (since 1 June 2023)
  - Zweckverband Regionale Deponie Schwarzwald-Baar-Heuberg (Deputy Chairman) (since 1 January 2024)

- **Thorsten Pfirmann**

- **Gunda Röstel**
  - Universitätsklinikum Carl Gustav Carus Dresden an der Technischen Universität Dresden, Anstalt des öffentlichen Rechts (Deputy Chairwoman)
  - VNG AG
  - Netze BW GmbH

  - Hochschulrat der Technischen Universität Dresden, Körperschaft des öffentlichen Rechts (Chairwoman) (until 30 September 2023)
  - Stadtwerke Burg GmbH

- **Joachim Rudolf**

- **Heiner Scheffold**
  - ADK GmbH für Gesundheit und Soziales (Chairman) (since 1 October 2016)
  - Kreisbaugesellschaft mbH Alb-Donau (Chairman) (since 1 October 2016)
  - Fernwärme Ulm GmbH (since 1 March 2017)
  - EnBW ODR AG (since 1 June 2023)
  - SV SparkassenVersicherung Holding AG (since 1 July 2021)

  - Krankenhaus Alb-Donau-Kreis GmbH (Chairman) (since 1 October 2016)
  - Pflegeheim Alb-Donau-Kreis GmbH (Chairman) (since 1 October 2016)
  - Donau-Iller Nahverkehrsverbund GmbH (Chairman) (1 January 2023 to 31 December 2023)
  - Sparkasse Ulm, Anstalt des öffentlichen Rechts (Deputy Chairman of the Administrative Board) (annual rotation) (since 1 October 2016)
  - Zweckverband Oberschwäbische Elektrizitätswerke (Deputy Chairman of the Administrative Board) (since 1 May 2023)
  - Komm.Paket.Net, Anstalt des öffentlichen Rechts (Chairman of the Administrative Board) (since 1 November 2015)
  - Innovationsregion Ulm e. V. (Chairman) (since 1 November 2022)
  - Zweckverband Thermische Abfallverwertung Donautal (TAD) (Chairman of the Association) (18 November 2022 to 31 December 2023)
  - Baden-Württembergische Krankenhausgesellschaft e. V. (Chairman) (since 1 July 2021)

Status
- Active member
- Inactive member

Disclosures of office holders pursuant to section 285 no. 10 German Commercial Code (HGB)
– Membership in other statutory supervisory boards
– Membership in comparable domestic and foreign control bodies of business enterprises

As of 11 March 2024

Further information on our **Supervisory Board** can be found here.

Online ↗

- **Harald Sievers**
  – Oberschwabenklinik gGmbH (Chairman)

  – Gesellschaft für Wirtschafts- und Innovationsförderung Landkreis Ravensburg mbH (WiR) (Chairman)
  – Ravensburger Entsorgungsanlagengesellschaft mbH (REAG) (Chairman)
  – Bodensee-Oberschwaben Verkehrsverbund GmbH (Chairman)
  – Kreissparkasse Ravensburg (Chairman of the Administrative Board)
  – Landesbausparkasse Südwest, Anstalt des öffentlichen Rechts
  – Zweckverband Oberschwäbische Elektrizitätswerke

- **Ulrike Weindel**

- **Dr. Bernd-Michael Zinow**
  – TransnetBW GmbH
  – VNG AG

  – TransnetBW SuedLink GmbH & Co. KG (until 30 June 2023)

- **Lothar Wölfle**
  – Abfallwirtschaftsgesellschaft der Landkreise Bodenseekreis und Konstanz (Deputy Chairman) (until 13 May 2023)
  – Bodensee-Oberschwaben Verkehrsverbund GmbH (Deputy Chairman until 31 December 2022) (until 13 May 2023)
  – Bodensee-Oberschwaben-Bahn Verkehrsgesellschaft mbH (Chairman until 31 December 2022) (until 13 May 2023)
  – Sparkasse Bodensee (Chairman) (until 13 May 2023)
  – Zweckverband Oberschwäbische Elektrizitätswerke (Chairman) (until 13 May 2023)
  – Zweckverband Breitband Bodensee (Deputy Chairman) Wirtschaftsförderungsgesellschaft Bodenseekreis GmbH (Chairman) (until 13 May 2023)
  – Regionales Innovations- und Technologietransfer Zentrum GmbH (RITZ) (Chairman until 31 December 2022) (Deputy Chairman since 1 January 2023) (until 13 May 2023)

Further information

Multi-year overview

Financial and strategic performance indicators

EnBW Group		2023	2022	2021	2020	2019
Earnings						
External revenue	in € million	**44,431**	56,003	32,148	19,694	19,436
TOP Adjusted EBITDA [6]	in € million	**6,365**	3,967	2,959	2,781	2,433
EBITDA	in € million	**5,738**	4,473	2,804	2,663	2,245
Adjusted EBIT [6]	in € million	**4,679**	2,352	1,403	1,392	945
EBIT	in € million	**3,341**	2,141	159	1,103	597
Adjusted Group net profit [1, 6]	in € million	**2,780**	1,413	1,203	683	787
Group net profit [1]	in € million	**1,538**	1,738	363	596	734
EnBW share price as of 31/12	in €	**79.20**	87.00	76.00	56.00	50.50
Earnings per share from Group net profit [1]	in €	**5.68**	6.42	1.34	2.20	2.71
Dividend per share / dividend payout ratio [2, 3]	in €/in %	**1.50/15**	1.10/31	1.10/36	1.00/40	0.70/40
Balance sheet						
Non-current assets	in € million	**36,618**	33,618	31,544	30,644	29,321
Total assets	in € million	**64,719**	69,504	71,273	45,965	43,288
Equity	in € million	**15,853**	12,769	8,499	7,769	7,445
Equity ratio	in %	**24.5**	18.4	11.9	16.9	17.2
Net debt [4]	in € million	**11,703**	10,847	10,351	14,407	12,852
Net financial debt [4]	in € million	**7,558**	7,214	4,466	7,232	6,022
Cash flow						
Retained cash flow [6]	in € million	**4,832**	3,217	1,784	1,639	1,241
TOP Debt repayment potential [4, 5, 6]	in %	**41.3**	29.7	17.2	11.4	–
Internal financing capability [5]	in %	**–**	–	–	102.8	90.0
Net cash investment	in € million	**2,740**	2,768	2,471	1,827	2,481
Profitability						
TOP Value spread [6, 7]	in %	**10.2**	4.1	2.0	–	–
Return on capital employed (ROCE) [6, 7]	in %	**17.6**	10.9	6.9	6.3	5.2
Weighted average cost of capital before tax	in %	**7.4**	6.8	4.9	5.2	5.2
Average capital employed	in € million	**27,310**	22,691	22,250	23,026	19,315
Sales						
Electricity	in billion kWh	**81**	106	108	107	153
Gas	in billion kWh	**548**	509	495	442	362
Smart Infrastructure for Customers						
TOP Adjusted EBITDA [6]	in € million	**240**	498	344	335	326
External revenue [6]	in € million	**17,249**	18,755	13,924	9,965	9,350
System Critical Infrastructure						
TOP Adjusted EBITDA [6]	in € million	**1,772**	1,058	1,263	1,347	1,355
External revenue [6]	in € million	**6,328**	6,697	4,413	3,657	3,460
Sustainable Generation Infrastructure						
TOP Adjusted EBITDA [6]	in € million	**4,648**	2,616	1,540	1,278	925
External revenue	in € million	**20,832**	30,543	13,804	6,064	6,623

1 In relation to the profit/loss attributable to the shareholders of EnBW AG.
2 For 2023, subject to approval from the ordinary Annual General Meeting on 07/05/2024.
3 The dividend payout ratio for 2022 was calculated based on the adjusted Group net profit before the restatement of the figure for the previous year. Adjusted for the valuation effects of IFRS 9 in 2021 and 2019.
4 For the calculation of the net debt and debt repayment potential, please refer to the section "The EnBW Group" of the management report.
5 The debt repayment potential replaced the internal financing capacity as a key performance indicator in 2021.
6 The figures for the 2022 financial year have been restated.
7 The value spread replaced the return on capital employed (ROCE) as a key performance indicator in 2022.

Non-financial performance indicators

		2023	2022	2021	2020	2019
Customers and society goal dimension						
TOP Reputation Index		**55**	58	55	56	53
TOP EnBW/Yello Customer Satisfaction Index		**130/161**	139/166	127/159	132/159	116/157
TOP SAIDI electricity in min./year		**19.3**	16.6	15.8	15.3	14.5
SAIDI gas in min./year [1]		**< 2** [2]	< 6 [2, 3]	< 1	< 1	–
Environment goal dimension						
TOP Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE	in GW/in %	**5.7/46.9**	5.4/41.7	5.1/40.1	4.9/39.0	4.4/31.8
TOP CO_2 intensity excluding nuclear generation [4, 7]	in g/kWh	**347**	491	478	342	406
CO_2 intensity including nuclear generation [5, 7]	in g/kWh	**366**	401	386	268	235
Own electricity generation [6, 7]	in GWh	**26,552**	42,084	42,399	35,149	47,807
Total final energy consumption [8]	in GWh	**1,146**	1,072	1,019	1,057	975
Proportion of RE in final energy consumption [9]	in %	**20.6**	20.2	20.2	15.8	13.7
Direct CO_2 emissions (Scope 1)	in million t CO_2eq	**10.9**	17.5	16.4	9.5	10.8
Indirect CO_2 emissions (Scope 2) [10]	in million t CO_2eq	**0.4**	0.5	0.4	0.8	0.9
Upstream indirect CO_2 emissions (Scope 3)	in million t CO_2eq	**4.0**	5.9	8.9	7.2	6.0
Downstream indirect CO_2 emissions (Scope 3)	in million t CO_2eq	**22.6**	31.8	52.0	42.6	36.0
CO_2 emissions avoided [11]	in million t CO_2eq	**9.9**	10.0	9.8	8.9	7.9
SO_2 intensity of own electricity generation [4, 7]	in mg/kWh	**204**	259	233	226	181
NO_x intensity of own electricity generation [4, 7]	in mg/kWh	**224**	286	269	253	231
Carbon monoxide (CO) intensity of own electricity generation [4, 12]	in mg/kWh	**33.7**	22.2	27.5	21.1	–
Particulate matter (total) intensity of own electricity generation [4, 12]	in mg/kWh	**3.2**	5.7	5.1	4.1	–
Waste water intensity [4, 13]	in l/kWh	**28.0**	30.2	–	–	–
Extracted water [14]	in million m^3	**904**	1,131	1,076	972	1,661
Water consumption [15]	in million m^3	**14**	37	35	34	40
Total waste [3]	in t	**740,394**	656,682	671,629	653,273	691,115
Hazardous waste [3]	in t	**69,007**	65,457	69,505	69,539	60,429
Non-hazardous waste [3]	in t	**671,386**	591,225	602,124	583,734	630,686
Recycling rate [3]	in %	**88**	96	96	94	96
Radioactive waste	in g/kWh	**0.0002**	0.0006	0.0006	0.0008	0.0012
Coverage ISO 14001 or EMAS [16]	in %	**74.8**	78.2	73.3	74.8	75.5
Coverage ISO 50001 [16]	in %	**50.8**	47.8	43.5	47.8	47.2

1 The performance indicator was reported for the first time in 2021. There are no values available for the comparative period 2019.
2 The current figure is not comparable with earlier figures due to a change in the allocation of business activities to the segments.
3 The figures for the previous year have been restated.
4 The calculation for this performance indicator does not include nuclear generation and the share of positive redispatch that cannot be controlled by EnBW.
5 Including nuclear generation and the share of positive redispatch that cannot be controlled by EnBW. This performance indicator will be reported for the last time for 2023 following the final phaseout of nuclear energy.
6 The generation volumes are reported without the controllable volumes for redispatch deployment since 2020.
7 Includes long-term procurement agreements and partly owned power plants.
8 Includes final energy consumption of production excluding electricity and heat generation losses and including pump energy, energy consumption of grid facilities (electricity, gas and water) excluding grid losses, energy consumption of buildings and vehicles.
9 For electricity consumption for which the proportion of renewable energies is unknown, the Bundesmix (federal mix) label for electricity of the respective reporting year is assumed. For fuels, a proportion of 5% bioethanol is generally assumed.
10 Market-based method. According to the location-based method, the Scope 2 emissions were 921 thousand t CO_2eq in 2022 and 875 thousand t CO_2eq in 2023.
11 Through the expansion of renewable energies, energy efficiency projects at the sites of customers/partners and the generation and sale of biogas.
12 Variations in the group of consolidated companies (excluding GKM, Fernwärme Ulm and contracting plants). The performance indicator was reported for the first time in 2020. There are no values available for the comparative period 2019.
13 Variations in the group of consolidated companies (excluding GKM, Fernwärme Ulm and contracting plants). The performance indicator was reported for the first time in 2023. Waste water is the total of the amounts of cooling and waste water that are discharged into surface water.
14 Total extracted water from surface/river water, well/ground water and drinking water. Does not include water for the drinking water supply.
15 Includes evaporation and wastewater.
16 Measured in % of employees.

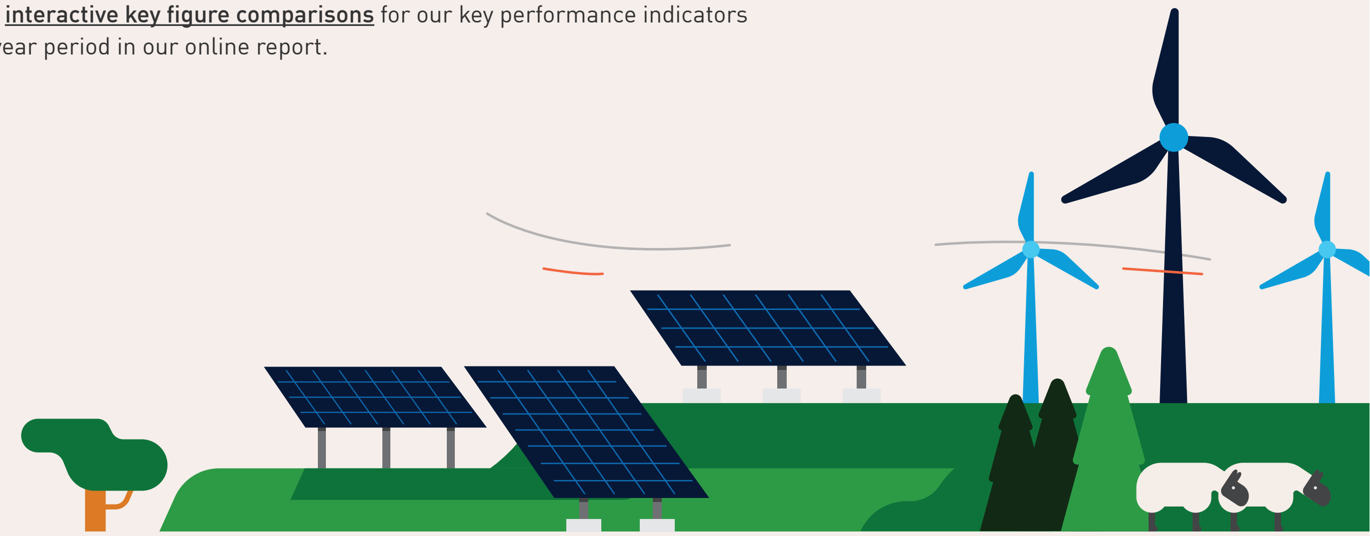
Non-financial performance indicators

		2023	2022	2021	2020	2019
Employees goal dimension						
TOP People Engagement Index (PEI)[1]		**82**	81	82	83	–
TOP LTIF for companies controlled by the Group[2, 3]/ LTIF overall[3]		**2.4/3.7**	2.6/4.1	2.3/3.3	2.1/3.6	2.1/3.8
Number of employees as of 31/12		**28,630**	26,980	26,064	24,655	23,293
Number of full-time equivalents[4]		**26,943**	25,339	24,519	23,078	21,843
Number of employees in Germany	in %	**89.4**	89.8	90.0	89.9	89.7
Number of employees abroad	in %	**10.6**	10.2	10.0	10.1	10.3
Employees covered by collective bargaining agreement	in %	**83.3**	83.9	85.3	87.6	88.6
Number of deaths after work accidents		**0**	1	2	0	1
Sickness ratio	in %	**4.8**	5.3	4.1	4.3	4.9
Proportion of women in the overall workforce	in %	**28.4**	27.8	27.7	27.0	26.8
Proportion of women in management positions	in %	**20.8**	19.5	18.1	17.2	17.4
Employee turnover ratio[5]	in %	**9.3**	7.9	6.2	5.9	6.3
Time spent on further training and education per employee	in days	**6.6**	6.7	7.3	6.8	5.3

1 Variations in the group of consolidated companies (all companies with more than 100 employees are considered (except ITOs)). The performance indicator was reported for the first time in 2020. No figures are available for the comparative period 2019.
2 LTIF indicates how many LTI occurred per one million working hours performed. The LTIF for companies controlled by the Group excluding waste management and LTIF overall, which includes the area of waste management, only includes companies with more than 100 employees excluding external agency workers and contractors.
3 Newly fully consolidated companies are not included for a maximum transition period of three years.
4 Converted into full-time equivalents.
5 There are no mass redundancies included in the stated figures. There have been no compulsory redundancies at EnBW during this period.

Other EnBW performance indicators

You can find numerous other performance indicators on our website. We use our ESG performance indicators – quantitative metrics for environment, social and governance aspects – to measure our progress in sustainability management.
You will find interactive key figure comparisons for our key performance indicators over a five-year period in our online report.



Glossary

A

Adjusted earnings figures
Adjusted earnings figures are operational earnings figures that are adjusted for non-operating effects. They include, among other things, adjusted EBIT and adjusted Group net profit/loss.

Adjusted EBIT
Adjusted EBIT is the earnings before interest and taxes adjusted for non-operating effects.

Adjusted EBITDA
The operating profitability of companies is often measured based on adjusted EBITDA (earnings before interest, taxes, depreciation and amortization). It describes earnings before the investment and financial results, income taxes and depreciation and amortization, adjusted for non-operating effects. The key performance indicator adjusted EBITDA is the central earnings indicator for EnBW.

Asset liability management (ALM) model
A model for asset liability and cash flow management. A cash flow-based model is used to determine the effects of the pension and nuclear provisions on the balance sheet, income statement and cash flow statement over the next 30 years. This ensures that the Group can cover its long-term pension and nuclear provisions within an economically viable time period using corresponding financial investments (so-called "dedicated financial assets").

Asset management
A financial asset management system facilitates the active management of investments that are used to cover pension and nuclear provisions. The central focus of this activity is to generate appropriate returns while taking into account the risks incurred.

B

Base
Base load product. The constant base level of supply/demand over a period of time.

Broadband
EnBW supports local authorities and municipal associations with tasks ranging from broadband planning and the installation of the infrastructure through to operation, as well as with the associated end-customer business (Internet, telephone and television).

Bundle
Product bundling (bundle offer) describes offering multiple products or services together in one package. Customers receive an appropriate add-on in addition to their purchase.

C

Capital employed
Capital employed comprises all assets from the operating business. At EnBW, it primarily comprises property, plant and equipment in the form of power plants or grids. Non-interest-bearing liabilities – such as trade payables – are deducted.

Cash pooling
Daily pooling of the cash or cash equivalents of one or multiple companies within a Group with the target of concentrating and transparently depicting them at the level of the parent company in order to optimize the interest result.

Climate Bonds Initiative
The Climate Bonds Initiative is an international organization working exclusively to mobilize the largest capital markets for bonds for climate action.

Climate Bonds Standard Board
The Climate Bonds Standard Board provides oversight over the implementation and operation of the Climate Bonds Standard & Certification Scheme.

CO_2 allowances
CO_2 allowances have been traded on the Leipzig electricity exchange since 2005. If a company purchases a CO_2 allowance, it is entitled to emit 1 t CO_2.

Commercial paper (CP) program
The CP program is a flexible financing instrument and serves to issue unsecured bonds on the money market for the purpose of short-term financing.

D

Debt Issuance Program (DIP)
The DIP, also known as EMTN (Euro Medium Term Notes), is a standardized documentation platform for raising debt through the issuing of medium- and long-term bonds on the capital market.

Debt repayment potential
This key performance indicator describes the retained cash flow in relation to the net debt and is the most significant performance indicator of the Group's ability to repay its debts internally. It replaced internal financing capability in 2021.

Dedicated financial assets
Dedicated financial assets are cash and cash equivalents and financial assets that are held to cover the pension and nuclear obligations.

Derivatives
Financial instruments whose price or market rate is derived from its underlying asset.

E

EBIT
EBIT stands for earnings before interest and taxes.

EBITDA
EBITDA stands for earnings before interest, taxes, depreciation and amortization.

EBT
EBT stands for earnings before taxes.

EEG cost allocations
Cost allocations under the EEG (Renewable Energies Act) are charged by the transmission system operators (TSO). On the one hand, the cost allocations cover the difference between the income generated by the TSOs from selling the electricity from renewable energies (RE) plants and the expenses incurred by the TSOs for the fixed feed-in remuneration and market premium payments to direct marketers of RE plants, while on the other hand, they also cover the costs of implementing the EEG. More than half of the electricity price for household customers today consists of taxes, duties and cost allocations. The EEG cost allocations account for the largest share.

EPEX
The European Power Exchange (EPEX SPOT SE) is a stock exchange for the short-term wholesale trading of electricity in Germany, France, Austria, Switzerland and Luxembourg.

EU Green Deal
The EU Green Deal is a package of measures from the European Union with the primary aim of making the EU climate neutral by 2050 and which contains staggered measures to achieve this goal.

EUA certificate
EU emission allowance. An EUA (European Union Allowance) entitles a company to emit 1 t CO_2. Each EU state allocates its supply of EUAs (1 EUA = 1 t CO_2) to its national companies either free of charge or via auctions.

EU taxonomy
In light of global warming, European countries have committed themselves to do more for climate protection and the EU aims to become climate neutral by 2050. The introduction of the sustainable finance taxonomy by the European Commission is a key instrument for achieving the climate protection targets in Europe. The EU taxonomy is a classification system that for the first time offers a uniform understanding of which economic activities are sustainable. In the first stage, it is focusing on climate change mitigation and climate change adaptation.

F

Fit for 55
Fit for 55 is a package of reformed and new directives and regulations issued by the European Commission for climate policy in the European Union. The package was presented on 14 July 2021. It is intended to help achieve the targets set in the European Green Deal of reducing greenhouse gas emissions in the EU by at least 55% by 2030, compared to 1990 levels, and making Europe climate neutral by 2050.

Forward market
Market on which the supply and procurement of electricity, fuel and CO_2 allowances are traded for a future period. Usual periods include weeks, months, quarters and years. Settlement can be either physical or financial. The forward market has the primary function of acting as a price hedge.

Fuel switch
Fuel switching, i.e., changing from coal to more climate-friendly natural gas, is a bridging technology on the path to climate neutrality. It is a necessary intermediate step because the availability of energy from renewable sources, such as wind and solar energy, is not yet sufficient to cover the demand for energy.

Funds from operations (FFO)
FFO is the cash-relevant earnings from operating activities that is available to the company for investments, the distribution of dividends and the repayment of debt.

G

Green bonds
Green bonds are issued exclusively to finance climate-friendly projects. The proceeds are invested in sustainable environmental and climate-protection projects.

Greenhouse gas emissions
The increase in the concentration of various greenhouse gases, especially carbon dioxide (CO_2), increases the greenhouse effect and leads to global warming, which itself has many consequences. Alongside carbon dioxide, other greenhouse gases include methane, nitrous oxide, fluorinated hydrocarbons, sulfur hexafluoride and nitrogen trifluoride.

H

Hedging
Hedging is a structured approach for securing against financial risks through financial transactions. Hedging involves engaging in countertrade transactions to offset a transaction or an existing position. This is usually carried out in the form of futures contracts.

HVDC
High-voltage DC transmission lines (HVDC) are used to transport electrical energy over large distances. The transmission lines use direct current for transportation as the transmission losses are lower.

I

Independent Transmission Operators (ITOs)
The “Independent Transmission Operators” must fulfill the European unbundling regulations for greater liberalization of the electricity and natural gas markets. The aim is to increase competition on the European energy market. An important prerequisite here is that the transmission grids are made available to all market participants as a neutral platform in a non-discriminatory way.

Inhouse bank
The inhouse bank provides banking services to those Group companies that participate in cash pooling and the clearing system for receivables and liabilities. These services cover standardized functions in the areas of payment transactions and cash management. This includes internal payments between Group companies as well as the provision of internal bank statements. This gives a clear picture of receivables and liabilities on a daily basis and enables the automated management of interest on these balances.

Internal financing capability
The internal financing capability describes the adjusted retained cash flow in relation to the net (cash) investment and was the most significant key performance indicator in the period from 2017 to 2020 of the Group’s ability to finance its activities internally.

Intraday trading
Intraday trading of electricity takes place on both the EPEX SPOT in Paris and the OTC (Over-the-Counter) market, i.e., via contracts negotiated off-exchange between electricity purchasers and sellers. It describes the continuous purchase and sale of electricity that is delivered on the same day. Therefore, it is also described as short-term wholesale electricity trading.

Investment-grade rating
An investment-grade rating exists if a credit rating of at least Baa3 (Moody’s) or BBB- (Standard & Poor’s) has been issued.

L

Liquefied Natural Gas (LNG)
LNG is a liquefied form of natural gas. It is produced by cooling natural gas under atmospheric pressure to a temperature of -160 °C. The main advantage offered by this energy source is its energy density. Due to its lower volume, LNG is easier to store and transport than natural gas.

M

Market stability reserve (MSR)
The market stability reserve (MSR) is a regulatory instrument that aims to reduce surpluses of EUAs in the CO_2 market and avoid any additional surpluses arising.

N

Net (cash) investment and adjusted net (cash) investment
Net (cash) investment describes the overall cash-relevant investment less the overall cash-relevant divestitures in the financial year. In the 2019 financial year, the adjusted net (cash) investment was adjusted to take account of accelerated growth investment, which has already had a positive effect on the EnBW 2025 growth strategy.

Net debt
Net debt comprises net financial debt and the net debt relating to pension and nuclear obligations.

Net debt relating to pension and nuclear obligations
Net debt relating to pension and nuclear obligations comprises the provisions for pensions and similar obligations and provisions relating to nuclear power. These provisions are netted against receivables relating to the dismantling of nuclear power plants and the dedicated financial assets.

Net financial debt
Net financial debt comprises the financial liabilities (including finance leases) taken on by the company less cash and cash equivalents and financial assets that are available to the company for its operating business. Financial liabilities are adjusted for valuation effects from interest-induced hedging transactions and for the portion of equity for the hybrid bonds.

Network Development Plan Electricity (NDP Electricity)
This plan describes the measures that need to be deployed over the next 10 and 20 years to expand and restructure the German land-based high-voltage grid to ensure the secure operation of the network. These measures make a significant contribution to the integration of rapidly growing renewable energies and thus also to the energy transition. The NDP Electricity is prepared jointly by the four German transmission system operators every two years (since 2016), before being submitted to the German Federal Network Agency (BNetzA) as the responsible regulator.

Network Development Plan Gas (NDP Gas)
In the NDP Gas, German gas transmission system operators calculate the transportation capacities that they will require in the future. The plan is prepared every two years in close cooperation with the German Federal Network Agency and in consultation with relevant market participants.

Non-operating EBITDA
Non-operating EBITDA is the earnings before interest and taxes that includes effects that cannot be predicted or directly influenced by EnBW and as such are not relevant to the ongoing management of the company.

Non-operating figures
The non-operating figures include effects that cannot be predicted or cannot be directly influenced by EnBW and as such are not relevant to the ongoing management of the company. They include, among other things, non-operating EBIT and non-operating Group net profit/loss.

R

Retained cash flow
After covering ongoing costs and dividend payments, the retained cash flow is available to the company for investment without the need to raise additional debt.

ROA (return on assets) relevant to remuneration
The return on the capital expenditure for intangible assets and property, plant and equipment based on the relationship between the non-adjusted EBIT and the sum of intangible assets and property, plant and equipment (adjusted for subsidies related to capital expenditure). The non-adjusted EBIT (earnings before interest and taxes) is the EBIT adjusted only for earnings from the measurement of financial assets allocated to the financial result and outstanding items for derivatives allocated

under trading as well as for effects due to the adjustment of the nuclear provisions and to changes in the inflation rate for costs for the operation, dismantling and disposal of the nuclear power plants and changes in the discount rate.

ROCE
ROCE is the return on capital employed in a company. It describes the relationship between adjusted EBIT including the adjusted investment result and the average capital employed and is thus the central value-oriented performance indicator of EnBW for assessing the return on capital employed in the relevant financial year.

S

Scopes
In accordance with the GHG Protocol (Greenhouse Gas Protocol), greenhouse gas emissions are classified in three emissions categories (Scopes). Scope 1 includes the direct greenhouse gas emissions from a company's own stationary or mobile plants/sources. Scope 2 includes the indirect greenhouse gas emissions that arise in the production of externally generated energy (electricity, steam, district heating and cooling) consumed in the company, as well as grid losses. Scope 3 includes the other indirect greenhouse gas emissions in the upstream and downstream supply chain that are not covered by Scope 2. The GHG Protocol obligates its users to report Scope 1 and 2 emissions, whereas the reporting of Scope 3 emissions is voluntary.

Sector coupling
Sector coupling is the networking of electricity, heating, mobility and industrial processes for the purpose of lowering carbon dioxide emissions. As sector coupling offers synergy effects in the integration of high proportions of renewable energies, it is viewed as a key concept for the energy transition and the development of energy systems using 100% renewable energies. There is a general consensus that sector coupling is necessary for the implementation of the energy transition and the achievement of climate protection targets.

Smart Grid
The smart electricity grid: Networked communication and control of electricity generators, storage systems, electrical appliances and network operating equipment in energy and transmission grids enables monitoring and optimization of the interconnected elements. The aim is to optimize the supply of energy by operating the system efficiently, reliably and cost-effectively.

Spot market
Market on which electricity supply and procurement quantities are offered and requested for the following day.

Sustainability-linked syndicated credit facility
A credit facility offered by a consortium bank in which the financing costs are tied to the achievement of certain sustainability targets.

Sustainable Development Goals (SDGs)
In the UN Agenda 2030, the global community set 17 goals (Sustainable Development Goals, SDGs) for socially, economically and environmentally sustainable development. The 17 global sustainable development goals cover a wide variety of themes. Areas of action include, for example, a greater commitment to peace and justice, promoting quality education, protecting the climate and strengthening industry, innovation and infrastructure.

Sustainable finance
Important foundations for sustainable finance are the Paris Agreement and the resulting EU action plan that defines specific sustainability targets for the finance sector. Sustainable financial products should help to achieve the Paris climate protection targets and realize the UN Sustainable Development Goals (SDGs). Sustainable business practices are a key focus of sustainable finance.

System services
The complete set of services required to ensure the quality of electricity supplies: provision of operating reserves, maintaining frequency stability, maintaining voltage levels, re-establishing supply, operation management.

T

TCFD (Task Force on Climate-related Financial Disclosures)
The Task Force on Climate-related Financial Disclosures (TCFD) has developed recommendations for the climate-related opportunity and risk reporting by companies. Companies are encouraged to disclose climate-related information – in the four key areas of Governance, Strategy, Risk Management and Metrics and Targets – where such information is considered material for the company. EnBW is represented on the international task force appointed by the G20 through its Chief Financial Officer and Deputy Chairman of the Board of Management Thomas Kusterer. (www.fsb-tcfd.org)

Treasury IT landscape
The treasury IT landscape comprises all the tools required for carrying out treasury functions. These functions include payment transactions, the management and processing of treasury transactions, cash management, liquidity planning and the management of bank and Group sureties.

V

Value spread
The value spread measures the surplus return over the minimum return on capital employed before taxes in a reporting period. It is calculated by deducting the minimum return on capital employed before tax, defined as the weighted average cost of capital (WACC), from the return on capital employed before taxes that was actually achieved (ROCE).

W

WACC
WACC stands for the weighted average cost of capital and is used in connection with value-based performance indicators. The cost of capital is determined based on the weighted average cost of equity and debt together.

Important notes

Publication in the company register

The complete consolidated financial statements prepared by EnBW Energie Baden-Württemberg AG and audited by EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft and the management report, which is combined with the Group management report, will be published in the company register together with the unqualified audit opinion. The necessary documents will be submitted to the company register by 30 April 2024 at the latest.

No offer or investment recommendation

This report has been prepared for information purposes only. It does not constitute an offer, an invitation or a recommendation to purchase or sell securities issued by EnBW Energie Baden-Württemberg AG (EnBW), a company of the EnBW Group or any other company. This report also does not constitute a request, invitation or recommendation to vote or give consent. All descriptions, examples and calculations are included in this report for illustrative purposes only.

Forward-looking statements

This report contains forward-looking statements, that are based on current assumptions, plans, estimates and forecasts made by the management of EnBW. Forward-looking statements of this kind are therefore only valid at the time they were first published. Forward-looking statements are indicated by the context, but may also be identified by the use of the words "can," "will," "should," "plans," "intends," "expects," "thinks," "estimates," "forecasts," "potential," "continued" and similar expressions.

By nature, forward-looking statements are subject to risks and uncertainties that cannot be controlled or accurately predicted by EnBW. Actual events, future results, the financial position, development or performance of EnBW and the companies of the EnBW Group may thus diverge considerably from the forward-looking statements made in this report. Therefore, it cannot be guaranteed nor can any liability otherwise be assumed that these forward-looking statements will prove complete, correct or precise, or that expected and forecast results will actually occur in the future.

No obligation to update the information

EnBW assumes no obligation of any kind to update the information contained in this report or to adjust or otherwise update forward-looking statements to future events or developments. This Annual Report can be downloaded from the Internet in German or English. In cases of doubt, the German version shall be authoritative.

Financial calendar

IAR

27 March 2024
Publication of the Integrated Annual Report 2023

AGM

07 May 2024
Annual General Meeting 2024

Q1

14 May 2024
Publication of the Quarterly Statement
January to March 2024

Q1–Q2

09 August 2024
Publication of the Six-Monthly Financial Report
January to June 2024

Q1–Q3

12 November 2024
Publication of the Quarterly Statement
January to September 2024

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