HM Government

Transitioning to zero emission cars and vans: 2035 delivery plan

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Foreword

In November 2020, the Prime Minister put the UK on course to be the fastest nation in the G7 to decarbonise cars and vans, announcing that all new petrol and diesel cars and vans will be phased out by 2030.

Delivering our commitments will bring about benefits that will be felt right across the country. Zero emission vehicles will improve air quality in our towns and cities, and offer cleaner and convenient driving for all.

Electric motoring will also become cheaper than petrol or diesel equivalents, with price parity expected in the mid-2020s.

This transition will support levelling-up by creating jobs and economic growth. We are already seeing this take place, with large investments announced by Nissan and Stellantis who have committed to build electric models in the UK.

Now that we have set the direction of travel, made possible by our departure from the European Union, and the speed at which we expect to move, both government and industry must have a single-minded focus on delivery.

This plan sets out the actions that government will take to deliver these ambitions, by bringing together our commitments on investment, regulation and policy changes over the course of this Parliament and beyond.

Government will not deliver this transition alone. We will set direction, remove barriers and support the early market, but it is the private sector that will lead the charge

Ten Point Plan for a Green Industrial Revolution key commitments

2030

The end of the sale of all new petrol and diesel cars and vans

2035

All new cars and vans must be fully zero emission at the tailpipe

£2.8 billion

Package to support the phase out dates

towards mass ownership of zero emission vehicles. Since the Prime Minister's 10 point plan, a number of industry leaders have already come forward with ambitious commitments to phase out petrol and diesel cars and vans.

We will work to harness and channel the ingenuity of industry, businesses, chargepoint and energy providers, devolved administrations, local government and others to deliver the system transformation we need to see.

Already we are making great strides towards achieving our 2030 and 2035 objectives. The pace of change is accelerating. The market share of zero emission vehicles keeps rising and many billions of pounds of private investment has been pledged globally to develop and manufacture new electric vehicles, their batteries and to provide chargepoint and energy infrastructure.

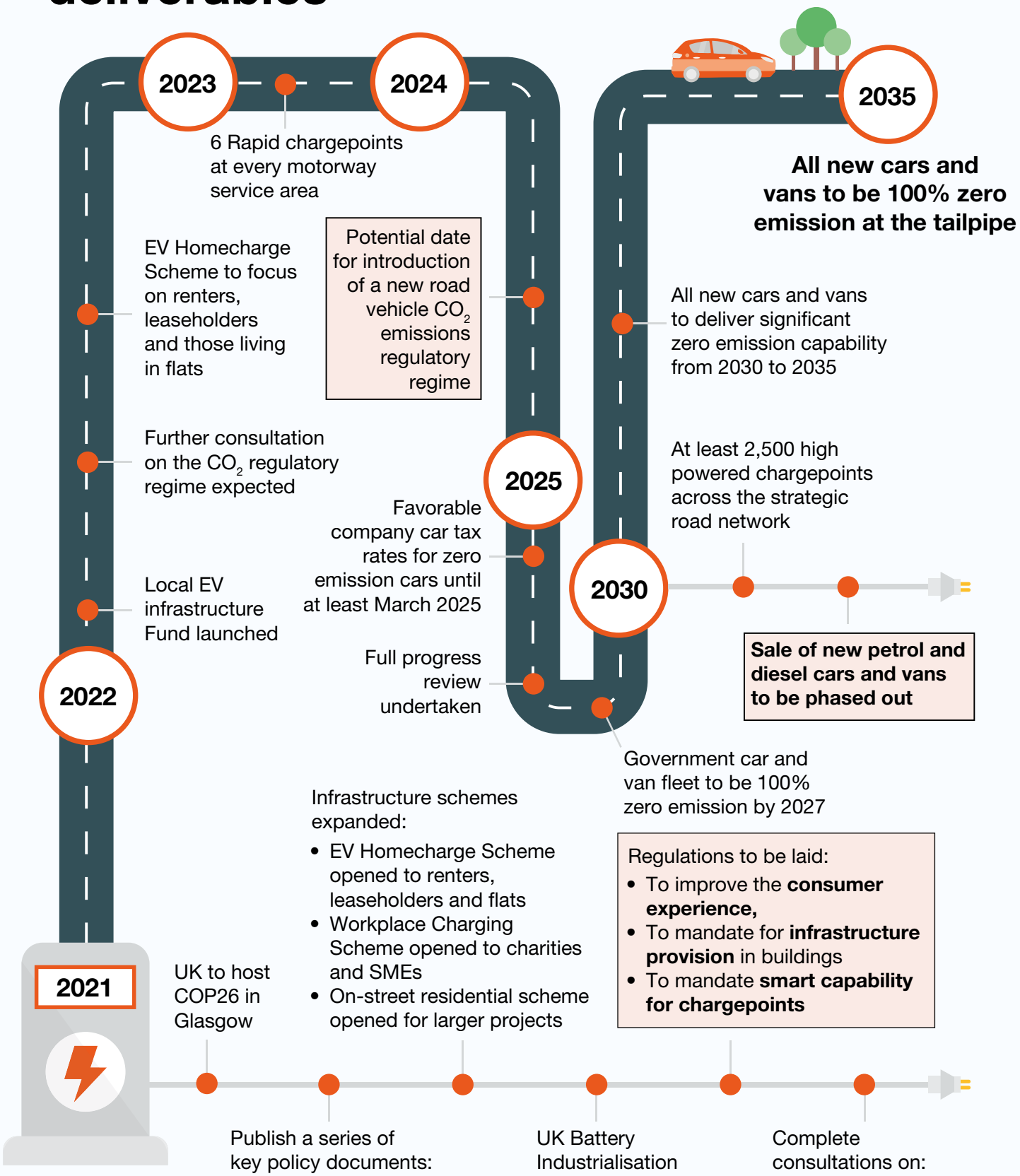
We are on track for mass adoption of zero emission vehicles over the course of this decade. This will help deliver carbon reductions, improved air quality and secure a green recovery as we build back better from Covid-19.

As we approach 2030, new opportunities and challenges will emerge, and Government's role and policies will need to adapt to ensure we remain on track. That means this plan will be iterative. We will publish regular updates, and will conduct a formal progress review by 2025.

The transition to zero emission cars and vans is a global one. Through our leadership of COP26, taking place later this year, we are urging international businesses, and national and sub-national governments to make similarly ambitious commitments to decarbonise cars and vans. This is putting the UK front and centre of the efforts to protect our planet and end emissions from one of the biggest drivers of climate change.

Source: SMMT

Road to 2035: Timeline of key deliverables



Pathways to realising our commitments

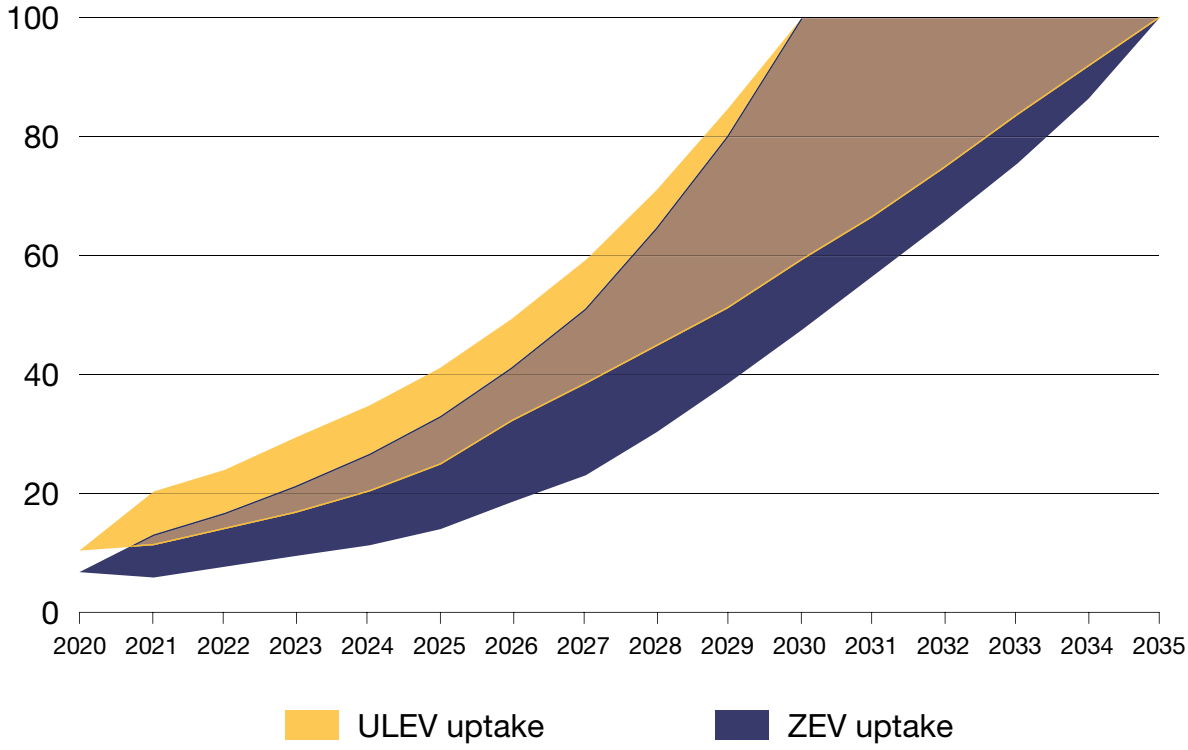
We have committed to phasing out the sales of new petrol and diesel cars and vans by 2030, and that all new cars and vans will be fully zero emissions at the tailpipe from 2035.

The graphs below illustrate potential pathways to achieving our ambitions between now and 2035. A range of technologies will help us reduce emissions over the coming years, but our goal is zero emissions at the tailpipe. To reflect this diversity the graphs show pathways for both zero emission vehicles and ultra-low emission vehicles. Ultra-low emission vehicles includes those with CO_2 emissions below 50g CO_2/km, and zero emission vehicles.

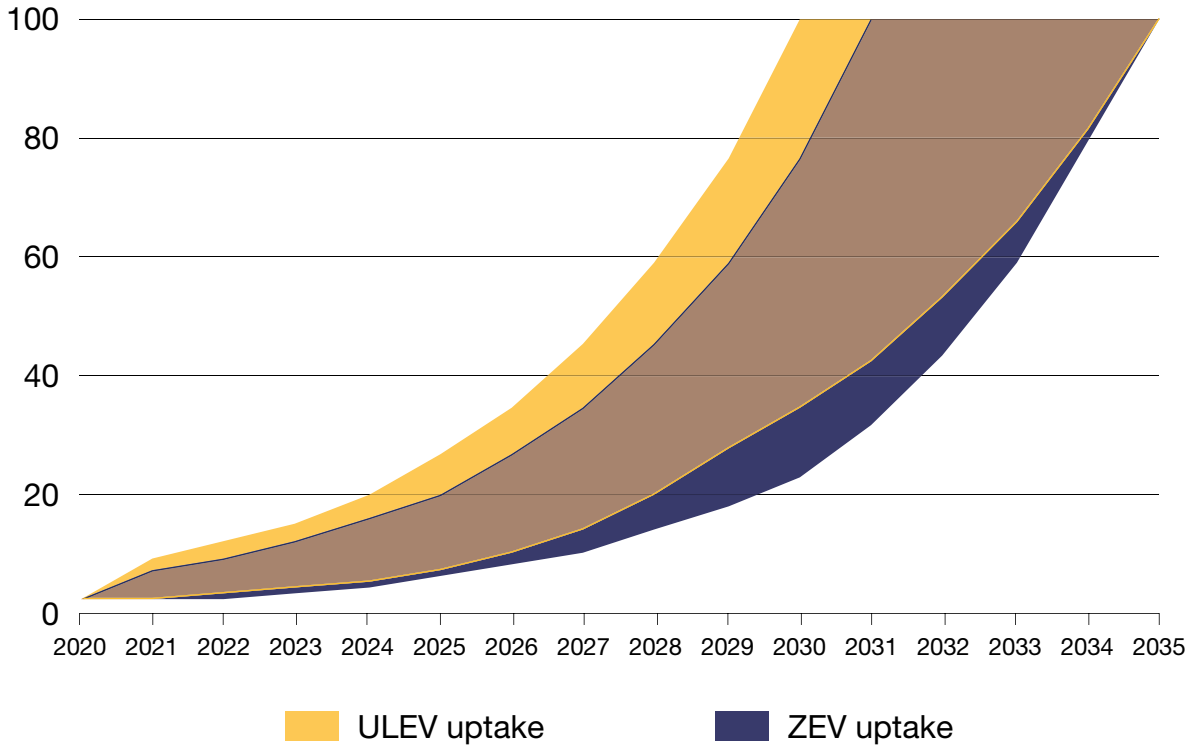
We have seen record growth in the zero and ultra-low emission car and van markets and we expect that to continue. However, there is still significant uncertainty over the share of sales that might be achieved in each year, as manufacturers ramp up production, chargepoints are rolled out and as further policies to support uptake are developed.

In our 2013 strategy document, 'Driving the Future Today', we projected that ultra-low emission cars would have a 3-7% market share in 2020 – in reality the market moved faster than we predicted and industry statistics show that 10% of cars sold last year were either fully-electric or plug-in hybrids. A range of pathways exist and some organisations, such as the Climate Change Committee, predict that higher sales figures could be feasible, which we would welcome. Given the uncertainty in predicting how this market will develop, we will continue to take a relatively conservative approach in determining our uptake pathways. They are intended as an illustrative example of how uptake could increase over the coming years. As the market matures we will continue to monitor vehicle uptake and will regularly update our projections.

Potential pathway – Percentage of **new car sales** accounted for by Ultra Low Emission Vehicles (ULEVs) and Zero Emission Vehicles (ZEVs)



Potential pathway – Percentage of **new van sales** accounted for by Ultra Low Emission Vehicles (ULEVs) and Zero Emission Vehicles (ZEVs)



Increasing uptake of zero emission vehicles

Key commitments

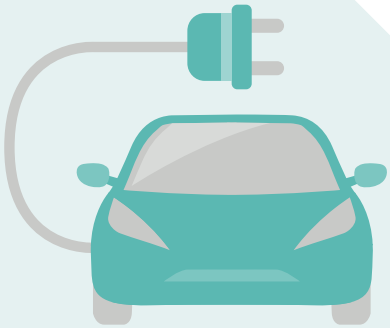
1. We will aim to introduce a new road vehicle CO_2 emissions regulatory regime in 2024
2. We will invest £582 million for the plug-in grants to reduce zero emission vehicle sticker price until at least 2022/23
3. Zero emission cars will receive favourable company car tax rates until at least March 2025

The zero emission vehicle (ZEV) market is growing at incredible pace. Since 2015, the number of zero emission car models has grown nearly three-fold, from 16 to over 44 models on sale today. This means that almost 1 in 10 cars on sale in the UK is zero emission. Alongside greater choice of models brought to market, vehicle ranges have increased, and prices have fallen.

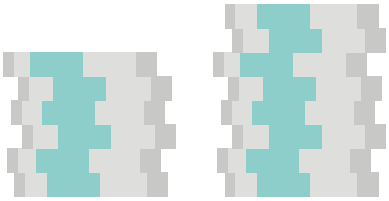
It can often be cheaper to own an electric vehicle, which can cost from 1p/mile to run, as compared to 10p/mile for petrol and diesel cars. This means that for some high mileage drivers, there is already total cost of ownership parity despite the higher upfront costs.

As battery prices drop and the production of ZEVs is scaled up, the total cost of ownership of ZEVs will continue to fall, it is predicted to become cheaper than the cost of owning an internal combustion engine vehicle in the mid to late 2020s – well before our 2030 and 2035 phase out dates.

But the upfront cost of ZEVs currently on the market are higher than equivalent petrol or diesel vehicles. This presents a barrier to those considering purchasing one. To incentivise the uptake of ZEVs, we provide a comprehensive offer to consumers which includes generous grants and tax incentives.



More than 1 in 10 cars sold in 2020 and nearly 1 in 7 so far in 2021 came with a plug. There are now over **500,000** zero and ultra-low emission vehicles on UK roads.



The market for more affordable zero emission cars is growing rapidly, with a more than **60%** increase in cars priced under **£35,000** since 2019.

Source: SMMT

Defining the regulatory pathway to 2030 and 2035

Following our withdrawal from the European Union, we have the opportunity to match our commitment to transition to zero emission cars and vans with a robust and ambitious regulatory framework.

To achieve this, we have published a green paper on CO_2 emissions from new road transport vehicles setting out the potential options for the UK vehicle CO_2 regulation regime, covering:

1. Defining the legal framework to deliver the 2030 and 2035 phase out dates. This will consider overall fleet efficiency, the path to delivering 100% zero emission car and van sales, and options for a ZEV mandate.
2. Defining what hybrid cars and vans can be sold between 2030 and 2035 – we have said that they must deliver 'significant zero emission capability'.

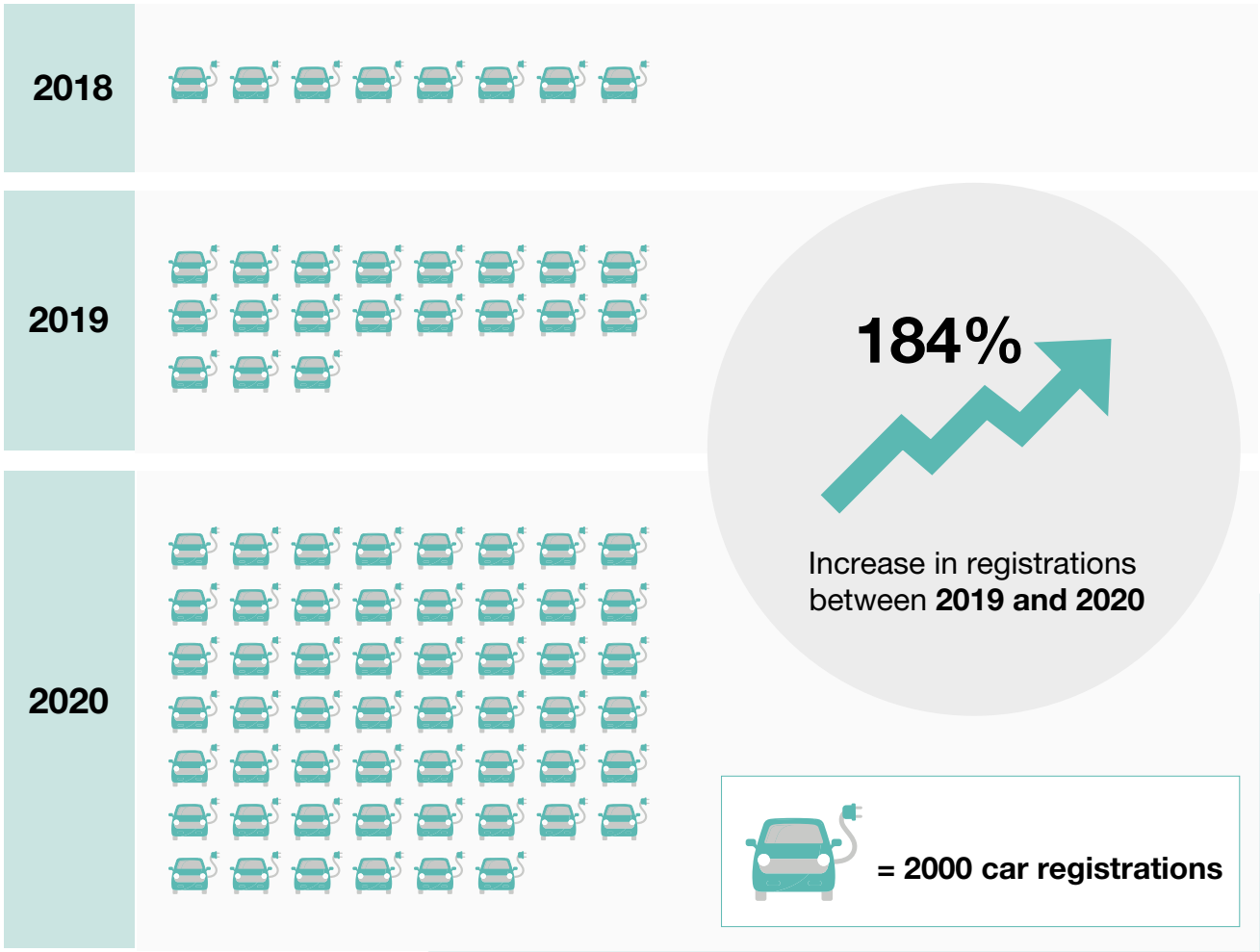
Commitment: We will aim to introduce a new road vehicle CO_2 emissions regulatory regime in 2024.

Making zero emission cars more affordable

We are supporting the uptake of zero emission cars by reducing the upfront price and the cost of ownership for motorists.

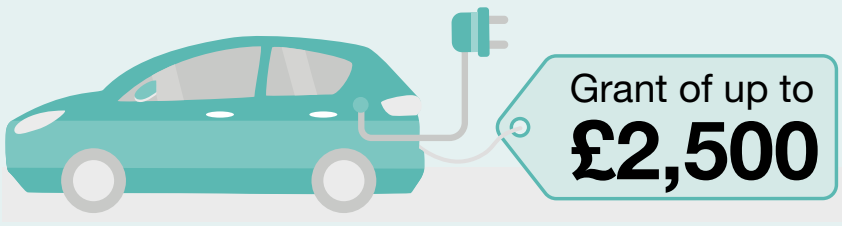
Battery electric car registrations 2018 to 2020

Over the last 3 years, battery electric car registrations have dramatically increased as consumers are increasingly choosing to switch. Registrations based on DfT Statistics.



Plug-in car grant

The Plug-in car grant provides up to £2,500 towards the purchase of a zero emission car priced under £35,000.



We have been clear since 2018 that we intend to reduce the plug-in car grant over time. The changes made to the grant in March 2021 mean the funding will last longer, and will be available to more drivers. We have increasingly focused our grant funding on more affordable zero emission vehicles, where most consumers will be looking and where taxpayers money will make more of a difference. A number manufacturers have reduced prices to qualify for the grant including BMW, Nissan, Vauxhall and Kia.

Commitment: We will continue to fund the plug-in car grant until at least 2022/23

Tax incentives

Company Car Tax (CCT) rates are lower for zero and ultra-low emission cars, making it more attractive for employers and employees to choose cleaner cars.

Last year, zero emission cars were zero rated for CCT, from April 2021 it has risen to **1%**. Beneficial rates **can save drivers over £2,000 a year**.

Zero emission cars are exempt from vehicle excise duty (VED) until at least **March 2025**.

Companies and unincorporated businesses are eligible for enhanced capital allowances when buying a new zero emission car for business use. This allows for 100% of the cost of the car to be written off against the taxable income of the period in which it was bought. This will be available until **March 2025**.

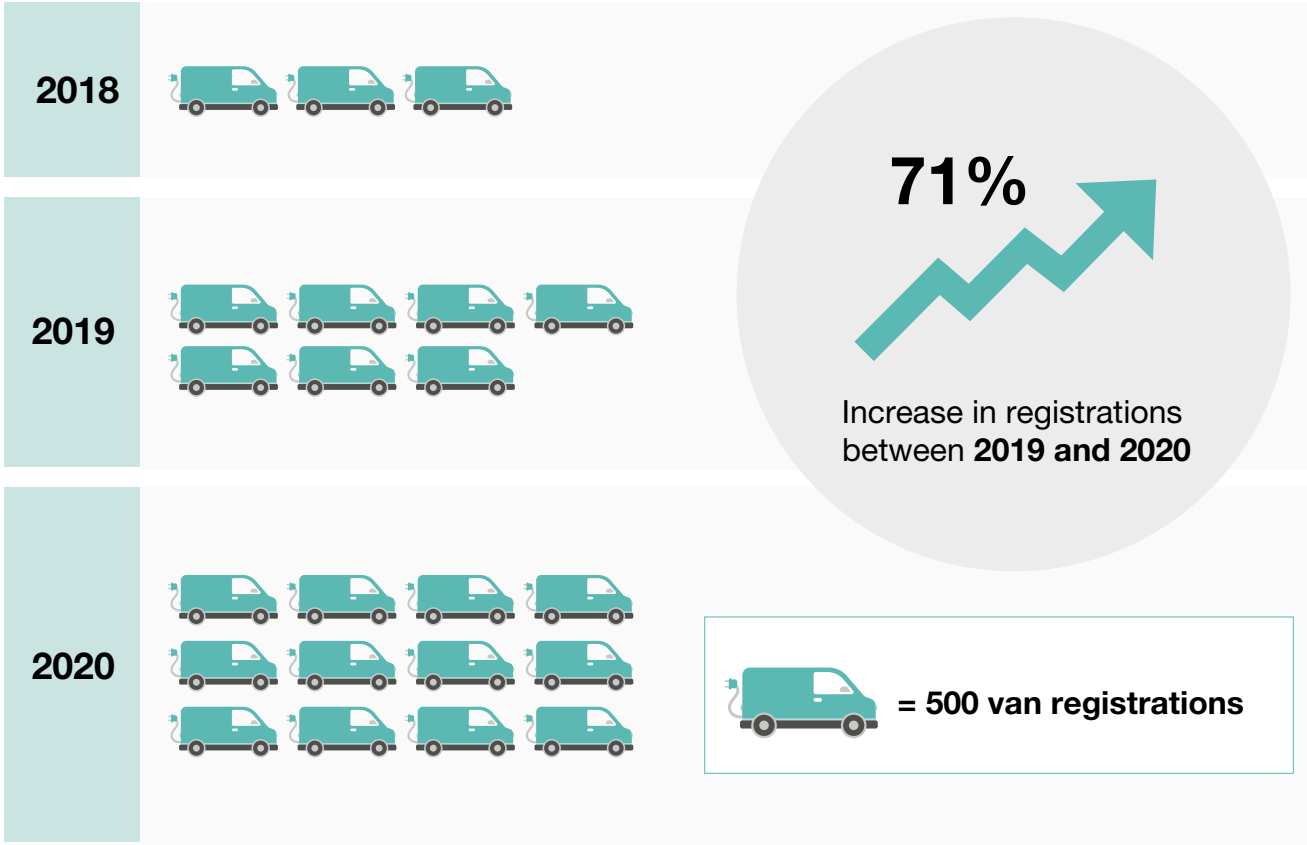
Commitment: Zero emission cars will continue to benefit from favourable CCT rates until at least March 2025.

Making zero emission vans more affordable and easier to own

We are supporting the zero emission van market through the plug-in van grant and tax incentives. We have changed legislation to make it easier to drive alternatively fuelled vans.

Ultra-low emission van registrations 2018 to 2020

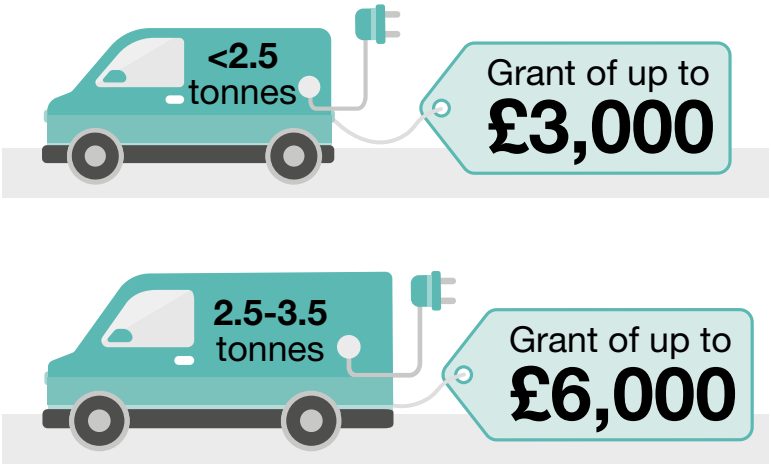
Although the van market is not as advanced as the car market, new models are coming to market and fleets are ordering more than before. Many companies have committed to roll out large numbers in the 2020s. Registrations based on DfT Statistics.



Plug-in van grant

The plug-in van grant provides funding of 35% of the purchase price for eligible vans up to £3,000 for vans less than 2.5 tonnes, and up to £6,000 for vans between 2.5 and 3.5 tonnes.

Vans must emit less than 50gCO_2/km and be able to travel at least 60 miles (96 km) without any emissions to be eligible.



Commitment: We will continue to fund the plug-in van grant until at least 2022/23.

Tax incentives

To incentivise the uptake of zero emission vans, a nil rate of tax on zero emission vans within the van benefit charge has been deployed since April 2021.

Zero emission vans are also exempt from VED.

Category B van derogations

This derogation allows drivers with a Category B (i.e. car) driving licence (who have undergone at least 5 hours of mandatory training) to drive alternatively fuelled heavy goods vehicles up to 4.25 tonnes. This removes a potential regulatory penalty for those switching to low emission vans.

Commitment: We will review the Category B derogation in 2021

The second-hand electric vehicle market will be critical in the UK's transition to zero emission vehicles (ZEVs).

Our incentives for new ZEVs play an important role in increasing supply for the second-hand market. Additionally, our funding for chargepoint infrastructure is also supporting consumers to buy used ZEVs.

We are engaging with stakeholders to ensure consumers have the information they need to make informed decisions on second hand ZEVs at the point of sale.

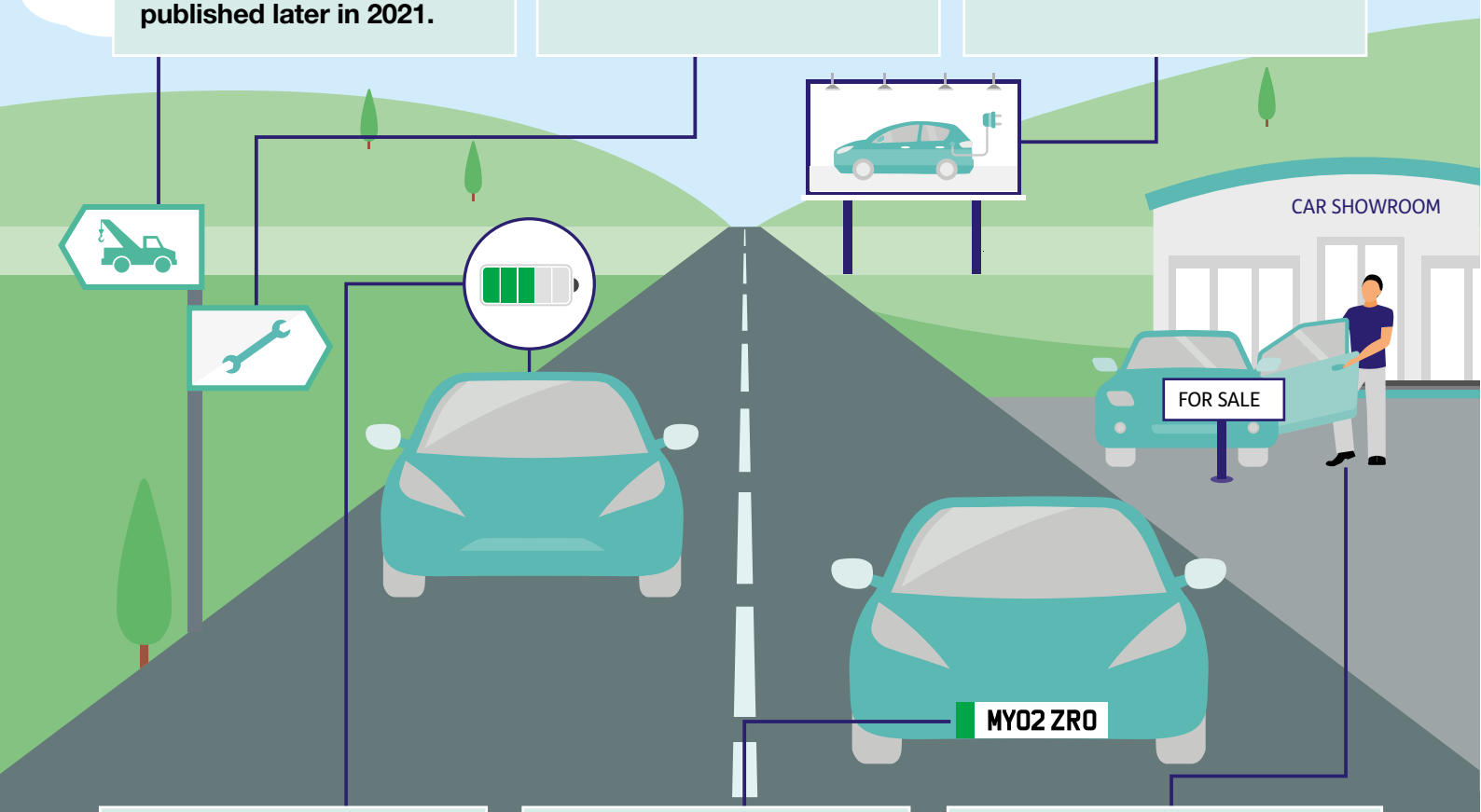
Increasing awareness and boosting confidence

We are committed to using a range of policy levers to increase awareness of zero emission vehicles and incentivise their uptake – both new and used - so that ZEV ownership grows for all.

Electric Vehicle recovery information document – In order to help recovery operators to understand the expectations of themselves and others when dealing with a damaged or broken down EV, we have commissioned Horiba MIRA and TRL to produce an information document. **This will be published later in 2021.**

Institute of Motor Industry TechSafe scheme provides a register and professional standard for EV technicians to help ensure they have the skills to safely repair an EV. The IMI register can be found here: **https://tide.theimi.org.uk/membership/professional-register**

Consumer information – For over six years, Government has worked with industry to educate consumers on the benefits of driving ZEVs. Later this year we will launch a cross-government campaign to Build Back Greener, which will include communicating the benefits of ZEVs.



Battery health – We are working with the United Nations Economic Commission for Europe to develop electric vehicle battery health monitoring and battery lifespan requirements. The aim is for this to provide a basis for future UK regulation to support consumer confidence, particularly in the second hand market.

Green number plates for new ZEVs were introduced in December 2020. The plates make it easier for vehicles to be identified as zero emission. This helps local authorities to design and implement new policies, such as zero emission zones, to incentivise people to own and drive a ZEV.

Electric Vehicle Approved scheme – Part-funded by government and developed by the National Franchised Dealers Association (NFDA), the scheme allows drivers to easily find retailers that lead the way in electric vehicle customer service, both in retail and after-sales care. **200 dealers have obtained accreditation and there is a waiting list for 2021/22.** The website for the scheme can be found here: **www.evapproved.co.uk**

Transitioning fleets

Fleet operators transitioning to zero emission cars and vans are key to ensuring we achieve our decarbonisation ambitions and enabling the UK to attract a sufficient supply of vehicles. Fleets represented almost 60% of all new car and van sales in 2019.

The British Vehicle Rental and Leasing Association (BVRLA) updated their 'Plug-in Pledge' last year to commit to the vehicle rental, leasing and fleet industry to registering 400,000 battery electric cars and vans each year by 2025, which could represent approximately **80% of UK electric car and van sales.**

Many companies are looking to switch. The EV100 global leadership campaign has launched the UK Electric Fleet Coalition, which has secured commitments to transition over **700,000 vehicles** to ZEVs at over **1,000** company sites by 2030.

The rental sector is also adopting innovative approaches to ZEV uptake. For example, Europcar has begun to offer businesses and consumers a 'try before you buy' scheme for zero emission cars and vans.

The vehicles bought by fleets will play an important role in feeding the second hand ZEV market, making ZEV ownership more affordable for all.

A number of the UK's biggest fleets have made commitments to a zero emission fleet which will result in several thousand more ZEVs on UK roads:

Company	Size of fleet	EV commitments made to date
AstraZeneca	17,000	Fully electric fleet by 2025
Royal Mail	41,500	Only new EVs bought by 2030
Mitie	5,300	Fully electric fleet by 2025
Openreach	27,000	Fully electric fleet by 2030
Ocado	1,700	Net zero emissions by 2035
Centrica	15,000	Fully electric fleet by 2025
DHL	7,500	Zero logistics-related emissions by 2050
Lloyds Banking Group	350,000	Net zero emissions across customer and corporate fleet by 2030
Rentokil	19,000	Fully electric fleet by 2030
Tesco	5,500	Fully electric van fleet by 2030
Zenith	48,000	Fully electric by 2030
Fleet Alliance	37,000	Fully electric by 2030

Case study: Government fleet commitment

Having brought forward the phase out dates for new petrol and diesel cars and vans, government will lead by example.

The government fleet commitment will see 25% of the central government car fleet transitioning to ultra-low emission vehicles by 2022.

Commitment: We will accelerate our fleet commitment. 100% of our car and van fleet will be fully zero emission at the tailpipe by 2027. As the UK's second largest fleet, this will see over 40,000 vehicles move to zero emission vehicles.

Vaxuhall Vivaro-e. Source: Vauxhall

Accelerating infrastructure rollout

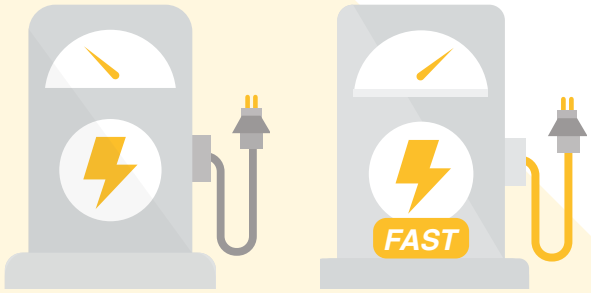
Key commitments

1. We are investing £1.3 billion to accelerate the rollout of charging infrastructure on motorways, on streets, in homes and workplaces
2. We will publish an Electric Vehicle Infrastructure Strategy in 2021
3. Ofgem has published a consultation covering distribution network connection charging with changes expected to come into force in 2023
4. We will continue to fund grants for chargepoints in homes, workplaces and on-street until at least 2024/25
5. We will regulate to improve the consumer experience at public chargepoints in 2021
6. We will regulate for infrastructure provision in new homes in 2021

The rollout of charging infrastructure is critical to achieving our ambitions. In conjunction with our diverse and innovative infrastructure industry, we have delivered strong progress. But we do not underestimate the scale of the challenge, and know that we must go further and faster. Infrastructure provision and quality is key to convincing motorists to make the switch.

We must have a core network in the short term that is visible and reliable, so that charging infrastructure is not a barrier to someone purchasing an electric vehicle. Over time, we need infrastructure provision to meet the needs of motorists. The private sector is well placed to lead the way in expanding the network.

We are increasingly targeting our support to areas where the market isn't investing. We are investing in a range of public and private chargepoint schemes to remove barriers for consumers. Through our funding we will support innovation and encourage competition to promote faster growth of the market. Over the coming years we will work with existing and new infrastructure providers to create a thriving investment pipeline in public charging infrastructure across the country to drive the mass uptake of electric vehicles that we want to see.



As of April 2021, there are **22,790** public electric vehicle charging devices in the UK, of which **4,259** are rapid chargers.

Today, a driver is never more than **25 miles** away from a rapid chargepoint anywhere along England's motorways and major A roads.

We have launched a chargepoint design project focusing on iconic design, accessibility and functionality.

Source: SMMT

Building a world-class public infrastructure network

The vast majority of electric vehicle drivers choose to charge their cars overnight at home (and 85% of dwellings in rural areas have off-street parking) or increasingly at work. Whilst the overall number of chargepoints is important, getting the right infrastructure into the right places is key to meet motorists needs. For those without access or undertaking longer journeys, public charging is key.

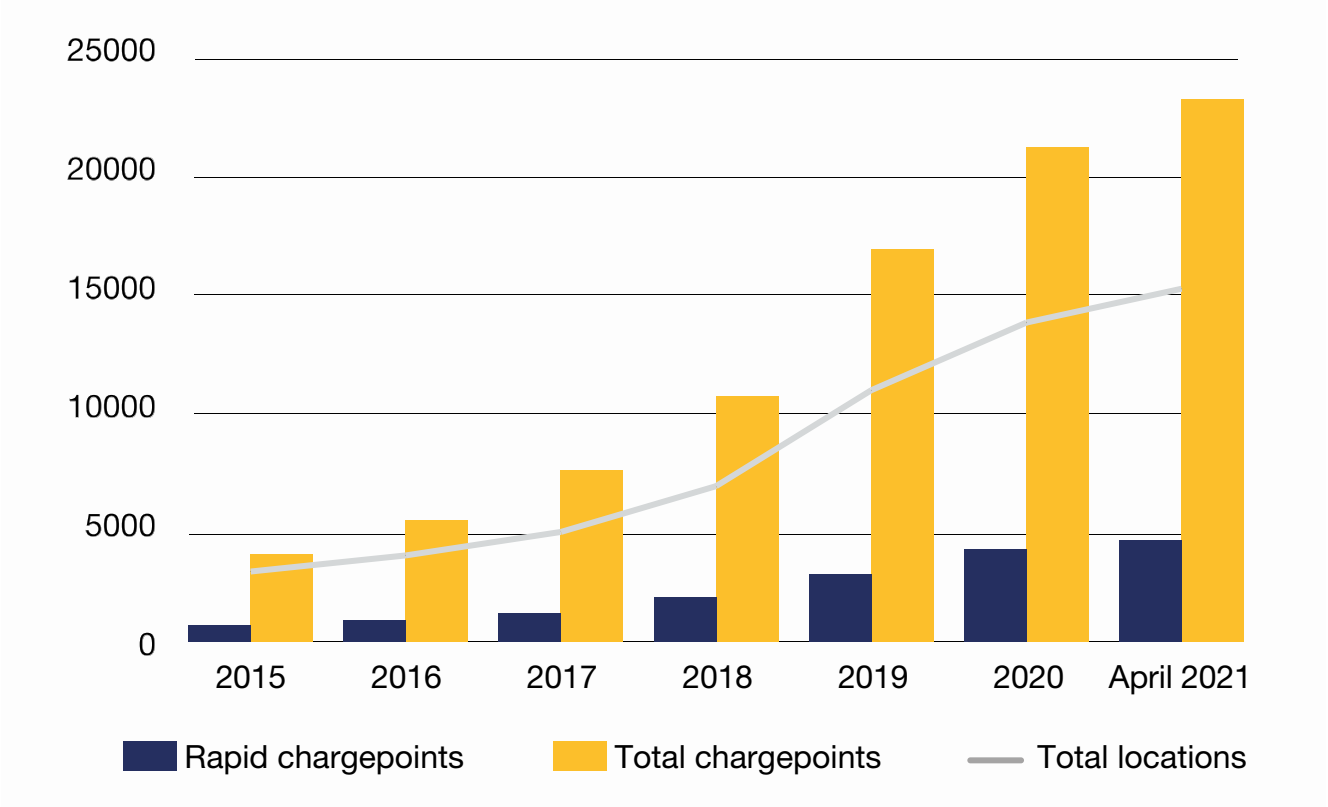
The UK has one of the largest public networks in Europe. Our shared goal with industry is to build and operate a self-sustaining public chargepoint network that's affordable, reliable and accessible for all motorists.

There is a wide network of public chargepoints across the UK. The growth of device locations since 2015 can be seen below:

2015 | **April 2021**

Our network is growing. Over the past 5 years, the numbers of public chargepoints and the number of rapid chargepoints have grown four-fold. According to Transport and Energy analysis, we have more fast chargers per 100km of major strategic road than any other country in Europe.

Total public chargepoints 2015 to April 2021



Source: DfT/Zap-Map April 2021 statistics.

Electric Vehicle Infrastructure Strategy

We will set out our vision for infrastructure rollout, and roles for the public and private sectors in achieving it. It will contain our approach to addressing the remaining market failures, enabling sufficient infrastructure provision at the pace required, and ensuring that consumers needs are met.

Commitment: We will publish an EV Infrastructure Strategy in 2021

Rapid Charging Fund

The Rapid Charging Fund is our flagship **£950 million** infrastructure delivery programme dedicated to supporting the rollout of a massively expanded rapid charging network at motorway service areas across motorways and A-roads in England.

We will upgrade grid capacity at these sites, enabling private sector investment in new chargepoints to support up to 100% uptake of EVs. By 2030 we expect to have 2500 rapid chargepoints across the strategic road network, and we expect 6000 by 2035.

We are working with Ofgem on the deployment of the Energy Networks Association's £300 million Green Recovery Scheme, announced May 2021, to accelerate motorway service area and wider EV charging infrastructure investment amongst other low carbon technologies. We are currently working with Highways England, to make the most use of existing connections through the use of battery storage solutions.

Commitment: We will support the private sector to deliver at least 6 high powered chargepoints at every motorway service area in England by 2023.

Commitment: We will invest £950 million to upgrade electricity connections at motorway service areas across England's motorways and A-roads to enable private sector investment in new chargepoints.

On-street Residential Chargepoint Scheme

The On-Street Residential Chargepoint Scheme provides local authorities access to up to 75% of funding to install EV infrastructure on-street and in public car parks. £20 million is confirmed for 2021/22.

From **April 2021** the scheme has changed to:

- address prohibitively high electrical connection costs by increasing the maximum funding available per chargepoint installation from £7,500 to £13,000
- encourage larger rollouts of charging infrastructure projects by removing the £100,000 maximum project cap.

Commitment: We will support provision of on-street chargepoints until at least 2024/25.

Local EV Infrastructure Fund

The upcoming **£90 million** Local EV Infrastructure Fund will support the rollout of larger on-street charging schemes and rapid charging hubs across England. We will assess a broader range of charging solutions beyond the support by our current schemes, to meet varying consumer needs.

Commitment: We will launch the Local Infrastructure Fund by Summer 2022

Regulating for new and existing buildings to install chargepoints

In 2019, government consulted on introducing requirements for charging infrastructure in all new homes and in new and existing non-residential properties.

These requirements would make England the first country in the world to mandate electric chargepoints in all new homes - significantly increasing the supply of EV charging infrastructure across England.

Commitment: We will publish the response to the consultation soon and aim to lay regulations in 2021 to mandate EV chargepoint provision in new homes.

Connecting EV chargepoints to the electricity network

The process and cost of connecting charging infrastructure to the electricity network can be a major barrier to roll-out. We are working with Ofgem and others to make getting new connections as timely, efficient, and affordable as possible.

We are already taking steps to mitigate high connection costs by launching the Rapid Charging Fund and increasing grant sizes for the On-street Residential Chargepoint scheme. Our EV Infrastructure strategy will identify other charging segments where connection costs contribute to market failures, such as fleet depots.

Commitment: Ofgem is considering changing the way charges for connecting to the electricity network are allocated. It has recently published a consultation proposing that all network reinforcement costs should be socialised across energy bill payers in future. This should often reduce the costs of connecting EV chargepoints to the network. Any changes are expected to come into force in 2023.

Government has published guidance on the connections process, which can be found here: https://www.gov.uk/government/publications/connecting-electric-vehicle-chargepoints-to-the-electricity-network/connecting-electric-vehicle-chargepoints-to-the-electricity-network

Electric Vehicle Homecharge Scheme (EVHS)

The Electric Vehicle Homecharge Scheme will provide funding towards the cost of a chargepoint and its installation at a property with dedicated off-street parking. The fund also supports leaseholders, renters and those living in flats.

Government has supported over 177,063 domestic installations across the country.

Commitment: We will shift the support of the EVHS to focus on leaseholders, renters and those living in flats from April 2022.

Commitment: We will continue to fund EVHS until at least 2024/25

Commitment: We will continue to fund the WCS until at least 2024/25

Workplace Charging Scheme (WCS)

The Workplace Charging Scheme will provide funding towards the cost of the purchase and installation of EV chargepoints at workplaces.

Since **April 2021**, the scheme has be opened up to small and medium enterprises (SMEs), as well as the charity sector, providing a boost as staff return to work. And, as we look to support UK tourism, B&Bs will be eligible for the grant to provide visitors with certainty that they will be able to charge when they visit.

Government has supported over 13,586 socket installations in staff car parks.

The Charging Infrastructure Investment Fund

The Treasury has launched a £400 million fund to leverage private investment and bolster the rollout of chargepoints across the UK. It is managed and invested on a commercial basis by Zouk Capital. The first £70 million was allocated for 3000 rapid chargepoints in 2019.

Commitment: We will invest up to £200m to be matched by private investors.

We are working with disability charity Motability and the British Standards Institution to develop a suite of accessibility standards to ensure that disabled drivers with visible and non-visible disabilities can use chargepoints as easily as possible

The UK infrastructure sector is charging towards 2030

Our phase out dates for new petrol and diesel cars and vans have sent a clear signal of the UK's direction of travel. This certainty has already unlocked private sector funding – which will expand chargepoint provision and provide opportunities to create jobs and investment across the country. Since the announcement of the Prime Minister's 10 Point Plan, a number of industry leaders have come forward with ambitious commitments.

BP Pulse	Aiming to double the size of its network in the UK to 16,000 chargepoints by 2030 and install a number of rapid charging hubs.
Shell	Plans to install 5,000 rapid and ultra-rapid electric vehicle chargers on forecourts by 2025.
Motor Fuel Group	Investing £400 million to install 2,800 high powered chargers (150 kWh and 350 kWh) at 500 UK locations by 2030.
InstaVolt	Aims to deliver 5,000 chargers by 2024/25.
Gridserve	Has acquired the Electric Highway from its original developer, Ecotricity. Gridserve will invest over £100 million to open 50 electric hubs, 300 rapid chargers at motorway services and over 100 electric forecourts.
EVBox	Announced that 500 chargepoints will be installed across UK car parks in a boost for destination charging.
Engie/Premier Inn	Over 1,000 chargepoints will be installed at Premier Inn sites allowing more flexibility to charge while away from home.
Podpoint	Partnered with VW and Tesco to deliver chargepoints at Tesco locations throughout the UK.
Allstar/Gronn Kontakt	Forming a partnership to launch the first EV charge payment card for fleets which can be used across 3,700 chargepoints in Britain.

Improving EV drivers experience of public chargepoints

Reliable and easily accessible public charging infrastructure is key to making the switch to EVs as smooth as possible. We have recently consulted to understand how to improve the consumer experience at public chargepoints focused on 4 core areas:

Mandating a single payment metric so consumers can compare the price across different charging networks.

Improving the **reliability of the charging network** so that consumers can feel confident that the chargepoint is working as expected.

Enabling consumers to **easily locate the right chargepoints** for their needs through opening public EV chargepoint data.

Standardising the payment methods whether consumers chose to pay using a smart technology or non-smart payment system.

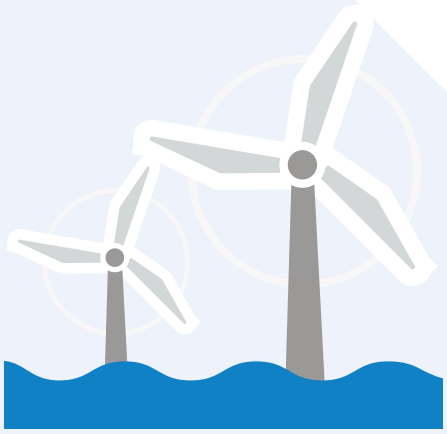
Commitment: We will publish the government response and lay regulations in 2021 to ensure that consumers have a positive experience when using the charging network and want to drive an EV.

A sustainable transition

Key commitments

1. We will introduce regulations in 2021 to ensure all private chargepoints have smart capability
2. We will publish a consultation in 2021 to ensure battery recycling legislation is fit for purpose
3. We will continue to progress research and other initiatives to reduce our dependency on raw mineral supply and make better use of global resources

Zero emission vehicles are the right solution to tackle greenhouse gas emissions and poor air quality from cars and vans. EVs in particular will strengthen the UK's energy security by partly replacing our reliance on oil with largely homegrown energy sources. Our challenge will be to ensure that we achieve a sustainable transition to EVs so we can fully realise these benefits. This means ensuring the electricity system can seamlessly integrate EVs creating a smarter and more flexible system. It also means driving down emissions throughout the vehicle's lifecycle, from low carbon electricity generation to recycling end of life batteries.



The UK now produces over **50% of its power from low carbon technologies** which will help green the lifecycle emissions of EVs

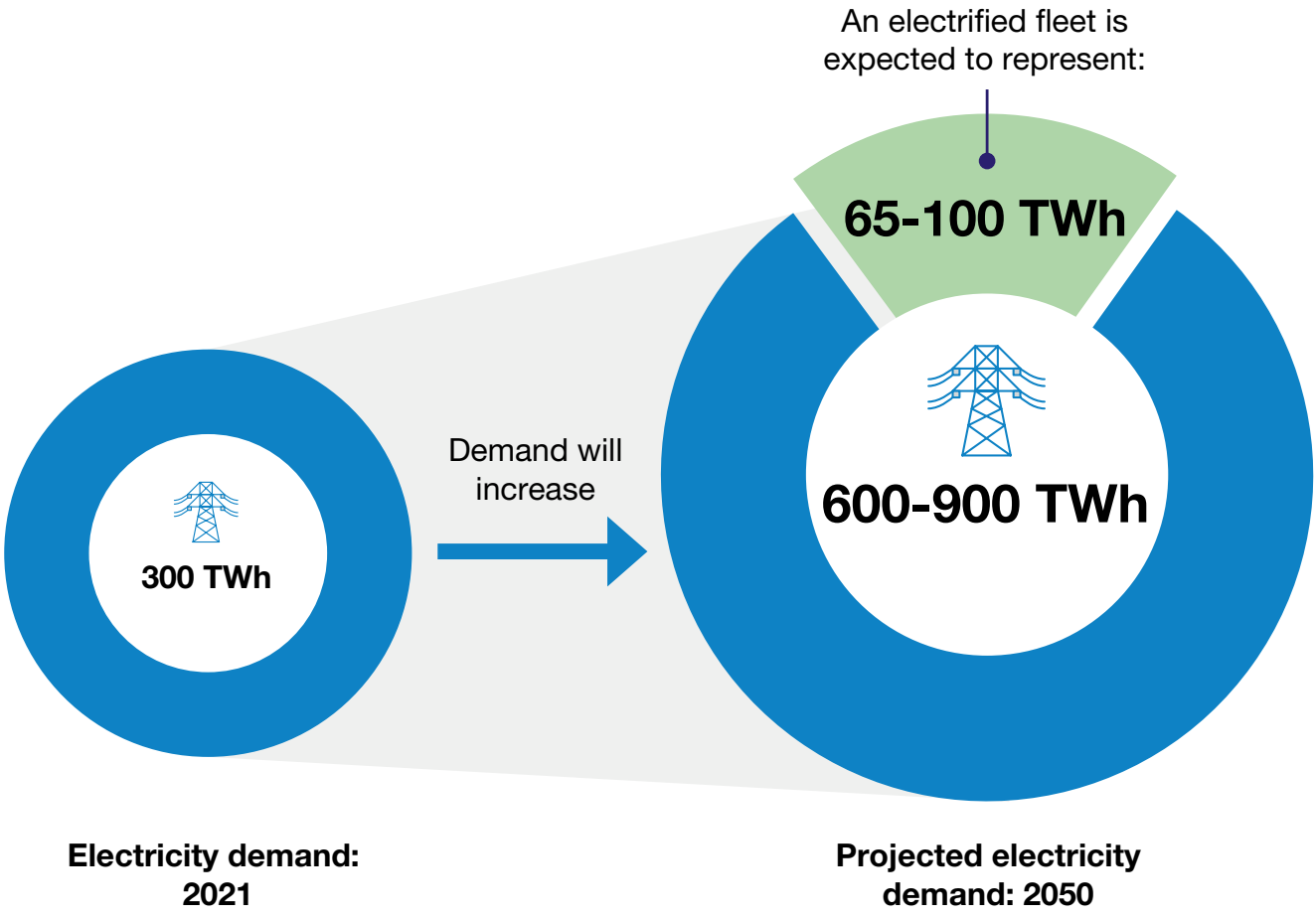
Smart charging has the potential to reduce bills, some industry estimates suggest that consumers could **save £230 a year** simply by charging their car off-peak.

Readying the UK's energy system

The energy system will have to expand to enable the mass uptake of EVs. The Energy White Paper set out the policy framework and further reforms to ensure there is sufficient investment to power the EV transition and achieve our 2050 net zero ambition. We will ensure the future energy system is one that gives consumers more control, delivering the energy we need efficiently, and at a fair cost.

Preparing the electricity system for EV demand

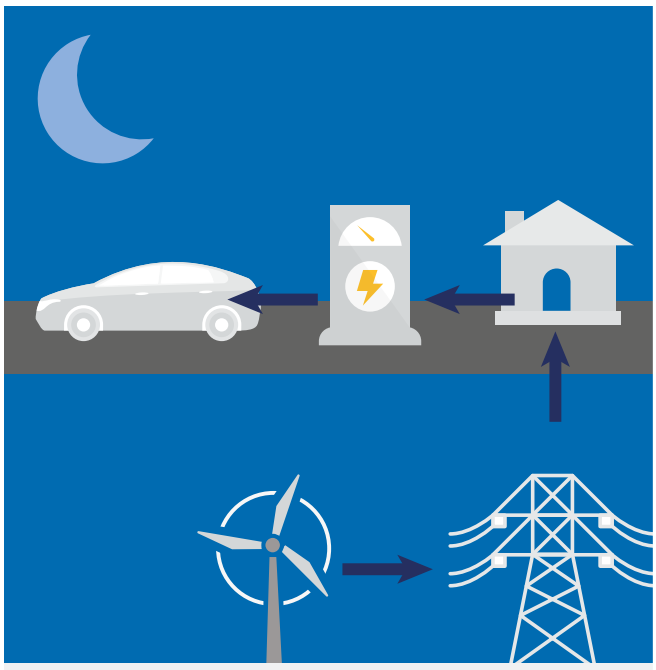
Electricity demand will increase as heat and transport are electrified. The Climate Change Committee's Sixth Carbon Budget suggests that electric cars and vans could increase total electricity demand by approximately 65-100TWh in 2050, compared to system-wide demand levels of 600-900TWh in 2050 (rounded to the nearest 50TWh).



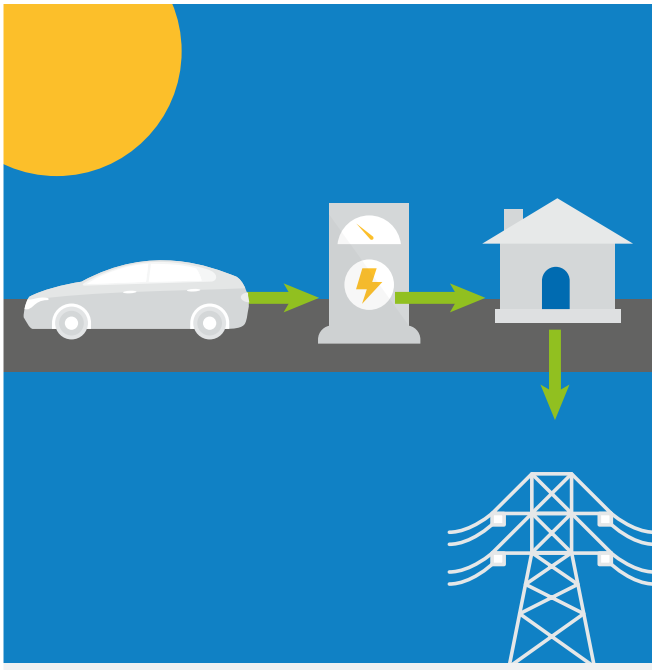
The market is already set up to deliver sufficient investment in new generation capacity. We support investment in new low-carbon generation through the Contracts for Difference scheme, by protecting developers from volatile energy prices. Additionally, the Capacity Market secures the capacity needed to meet peak electricity demand. Through auctions, capacity providers compete to obtain agreements under which they commit to making their capacity available when needed, in return for guaranteed payments.

Government has ensured that Ofgem, the energy regulator, has legal responsibilities and powers to deliver an energy system fit for both current, and future consumers. Ofgem requires network companies to use local information to assess and anticipate capacity requirements, including the demand from EV charging. Ofgem then ensures that the companies are funded to deliver this additional demand, incentivising them to plan and deliver the work as efficiently as possible, minimising unnecessary disruption and expense, e.g. by laying larger cables to avoid reopening roads twice. Government maintains regular dialogue with Ofgem to monitor progress. We will consult this year on a Strategy and Policy Statement (SPS) which will set out our priorities and policy outcomes for energy policy to deliver net zero. The SPS will create a clear source of legal accountability where Ofgem must consider these priorities and policies when making regulatory decisions.

Smart charging allows EVs to be charged when it is most efficient for the balance of supply and demand across the electricity system. This means shifting charging to periods of lower overall demand for electricity (for example, overnight) or high renewable generation (for example, particularly windy or sunny weather).



Charging at times of low demand or high renewables (smart charging)



Vehicle to grid

Vehicle-to-grid solutions could provide significant benefits for the electricity system, enabling EVs to become virtual powerplants that sell energy back to the grid, and provide new ways for consumers to benefit from owning a EV and engaging in the electricity system.

Smart Charging

Electric vehicles offer new opportunities for consumers to be part of a smarter and more flexible energy system. By charging vehicles at off-peak times, we can delay or reduce the need for new electricity generation or network infrastructure investment, reducing costs for all bill payers.

We have already taken steps to drive uptake of smart charging, such as including smart requirements within the EVHS grant.

Further measures are needed to fully deliver on the principles set out in our smart charging consultation, including end-to-end cybersecurity and interoperability and we have set out next steps for this work in the consultation response.

Commitment: We have published our smart charging consultation response and later this year we will legislate to mandate that all private chargepoints must be smart.

Smart charging also includes bi-directional vehicle-to-grid (V2G) and Vehicle-to-X (V2X) charging (where "X" means anything, such as a building, a battery or the grid), which we are continuing to support.

Commitment: We will publish with Ofgem a second phase of the Smart Systems and Flexibility Plan (SSFP) in 2021 to set out reforms needed to secure flexibility across the energy system, including electric vehicles.

Commitment: We will, in conjunction with Ofgem, publish a plan to maximise the contribution of EV flexibility in 2022.

Commitment: We will publish a call for evidence for V2X technologies in a net zero energy system.

Electric Vehicle Energy Taskforce

Government launched an Electric Vehicle Energy Taskforce in 2018 to bring together government, the energy and automotive industries, to plan for future electric vehicle uptake and ensure the energy system can meet future demand in an efficient and sustainable way.

The taskforce reported in January 2020 with 21 proposals for government, Ofgem and industry to take to ensure the energy system is ready for the transition.

Four workstreams were established to progress priority actions relating to data, consumers, infrastructure and smart charging in the second phase of EVET, and recommendations from these workstreams are due to conclude soon. The Government and Ofgem will continue to work with EVET as a valuable forum to develop consumer-focused outputs reflecting multiple perspectives. We are currently working with the Taskforce on the next tranche of its activities, focused on enabling the 2030 transition and bringing the automotive and energy sectors together.

Ofgem's EV Action Plan

Ofgem's EV Action Plan, to be published later this year, will identify and quantify key issues that the uptake of EVs create for energy consumers. It will also identify priority actions that Ofgem should undertake to support the uptake of EVs and deliver its objectives in relation to the uptake of EVs. The key outcome of the strategy is to maximise the opportunities that EVs create to deliver a smarter, more flexible energy system.

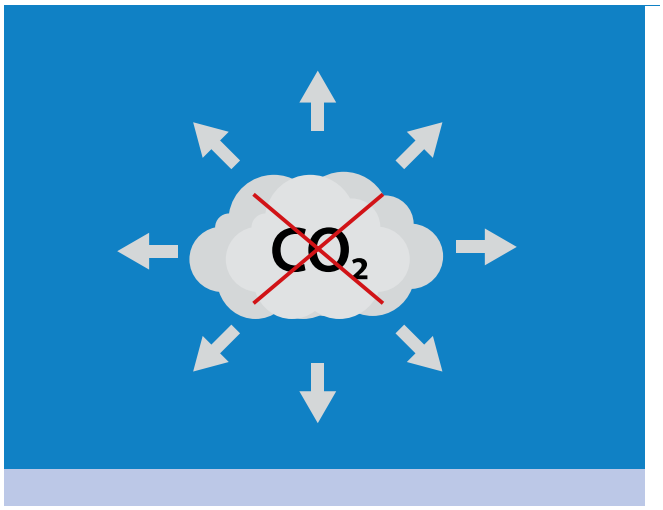
Greening vehicle lifecycles

Low carbon electricity

Analysis from the Climate Change Committee has shown that EVs have substantially lower greenhouse gas emissions than conventional ICE vehicles, even when taking into account the current generation mix of the electricity to charge these vehicles and battery production.

That electricity mix is becoming greener. Given the pivotal role of electricity in delivering net zero emissions, we must aim for a fully decarbonised power system by 2050 and have already taken great strides towards that objective.

As our electricity mix continues to become cleaner, so too will the lifetime emissions of electric cars and vans.



The carbon intensity of the UK grid reduced by

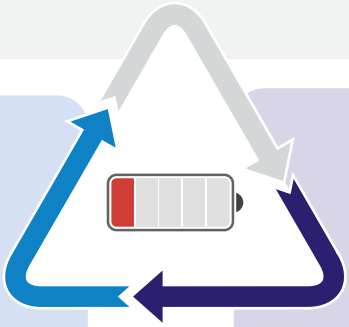
in the five years up to 2019

Battery recycling

Batteries are resource intensive to produce. Battery recycling is key to minimising environmental impacts, and to extract maximum economic value. Industry is taking a leading role in developing battery recycling facilities. Government is pursuing the right innovation, infrastructure and regulatory environment to support battery recycling.

The Faraday Battery Challenge includes the target to increase the **recyclability of battery packs from between 10% to 50% today, to 95%** by 2035.

We will launch a **consultation this year,** covering placing batteries on the market and waste requirements.



We provide **R&D grants for battery recycling projects.** Including RECOVAS, funded through the Advanced Propulsion Centre, which will develop the UK's first commercial scale recycling facility for automotive battery packs.

When EVs reach end of life, the remaining battery storage capacity is expected to be over 70%. Therefore, before they are recycled, we expect batteries to have second-life uses, such as home energy storage. Second-life batteries could help provide a flexible energy system and meet net zero by 2050.

Commitment: We will publish a consultation on domestic batteries legislation in 2021 to ensure we have an appropriate legal framework governing the increasing numbers of EV batteries

Raw mineral supply

Our policy is to reduce our reliance on critical raw materials over time. As new technology develops, alternatives will become available and commercially viable. We are working hard to address the social, ethical, environmental and supply issues that surround critical raw materials now, and we are funding R&D into the alternatives which will deliver sustainable batteries, motors and generators in the future. Our actions include:

- working directly with civil society and mining companies to ensure responsible sourcing of raw materials and support for programmes that develop innovative approaches to ending child labour and human rights abuses.
- supporting initiatives to localise more of the EV and battery supply chain to the UK – for example, the Faraday Battery Challenge has funded a feasibility study into developing a UK supply of lithium in Penryn, Cornwall.
- supporting R&D projects to reduce and replace critical raw materials.
- supporting EV battery recycling to provide a valuable secondary resource for critical minerals.

Increasing supply for increasing demand

Key commitments

1. We will provide £500 million until 2025 (as part of our commitment of up to £1 billion) through the Automotive Transformation Fund to build an internationally competitive electric vehicle supply chain in the UK
2. We will publish an economy wide Net Zero Strategy, which will include recommendations from the Green Jobs Taskforce to ensure the UK has the right skills to remain at the forefront of the design, manufacture and use of ZEVs in 2021
3. We will publish a Hydrogen Strategy in 2021 to develop the UK's hydrogen economy

Government and industry share the ambition for the UK to lead in the design and manufacture of ZEVs so that we can grasp the once in a generation opportunity to boost jobs and growth in the UK's automotive industry that this transition provides.

British car manufacturing is one of our great success stories and has a significant presence in the West Midlands, Wales and the North. The transition to ZEVs represents a substantial challenge and opportunity for the automotive industry. New supply chains will be required and jobs will have to be transformed to adjust to new manufacturing practices. It is our ambition that as we make this transition, high-quality green jobs will be created across the country. We are already a leading manufacturing nation of EVs with Nissan, BMW Mini and LEVC all building models in the UK. Further investment is planned, with companies such as Nissan, Stellantis and Jaguar Land Rover committing to UK-built electric models and demonstrating their faith in our renowned supply chain.

Increased supply of vehicles and batteries will be needed to meet our accelerated ambitions. Strengthening the UK supply chain for electric vehicles and batteries is a strategic priority for us. Across this parliament, we will invest in capital infrastructure and research and development projects to build an internationally competitive EV supply chain, including gigafactories.

Nissan and **Stellantis** have committed to building new EV models in the UK. Nissan has announced **£1 billion** of investment to include battery manufacturing and Stellantis will open their **first dedicated EV factory**.

Our Automotive Transformation Fund will accelerate the shift to zero emission vehicles and deliver support for **40,000 jobs in the automotive sector** across the UK by 2030.

Source: SMMT

Vehicle manufacturer commitments

The supply of zero emission vehicles is critical for us to achieve our aims. Vehicle manufacturers across the globe are leading the way towards cleaner mobility and are increasingly electrifying their car and van ranges. A number of companies now have ambitious commitments to phase out ICE vehicles and an estimated £230 billion will be invested in future technologies in the next 5 to 10 years.

Aston Martin	Aston Martin will launch an all-electric or hybrid model for all products from 2024.
Audi	From 2026, Audi will only launch new pure electric models and will phase out internal combustion engine cars from 2033.
Bentley	All Bentley models to be fully electric by 2030.
Ford	In Europe, 100% of car sales to be all-electric and two-thirds of commercial vehicles expected to be all-electric or plug-in hybrid by 2030.
Honda	Honda sales to be 100% zero emission globally by 2040 – this includes sales of 100% battery electric and fuel cell electric vehicles (FCEVs).
JLR	Jaguar to be all-electric from 2025. Jaguar sales are expected to be 100% zero emission and Land Rover sales expected to be 60% zero emission by 2030.
MINI (Part of BMW Group)	From 2025, MINI aims for half of its global sales to be ZEVs. From the 2030s, it will be a fully electric brand.
Nissan	All new Nissan models will be ‘electrified’, which includes hybrids and fully electric vehicles by 2030.
Renault	By 2025, half of its European models will be all-electric and they have committed to EVs representing 30% of sales.
Stellantis	All models available in Europe will be hybrid or all electric by 2025.
Toyota	Plan to introduce 15 BEV models by 2025 and aim to have sales of more than 5.5 million electrified vehicles, including more than one million zero emission vehicles.
Vauxhall/Opel	100% of cars and vans sold to be all-electric from 2028.
Volvo	Volvo sales to be 100% fully electric by 2030.
VW	VW expect 70% of sales in Europe will be all-electric by 2030 and they will phase out ICE cars in Europe between 2033 and 2035.

Automotive Transformation Fund

The fund supports R&D and capital investments across strategically important parts of the electric vehicle supply chain, including batteries (gigafactories), motors, drives, power electronics and fuel cells. This will:

- help to secure the transformation of the automotive sector at pace by developing and embedding the next generation of cutting-edge automotive technologies in the UK
- secure significant investment in the UK's electric vehicle supply chain, including gigafactories for battery manufacturing

Businesses across the UK are invited to submit expressions of interest detailing their investment proposals. Contact details to discuss available opportunities further can be found on the website of the Advanced Propulsion Centre: https://www.apcuk.co.uk/opportunities-for-you/automotive-transformation-fund/

Commitment: We will provide £500 million through the Automotive Transformation Fund until 2025 to build an internationally competitive electric vehicle supply chain in the UK

The Department for International Trade plays a key role in attracting and supporting foreign direct investment from around the world into the UK's EV supply chain, using its wide global network of overseas posts and extensive UK-wide investment teams.

The Office for Investment was created by the Prime Minister to unlock significant strategic investments aligned to our priorities. It has an ambition to position the UK as a world-leader in zero emission transport through securing mobile investment. The Office is designed to be the front door for the most strategic investments and uses the strength and expertise of government departments to land investment into UK's EV supply chain.

Hydrogen for cars and vans

Hydrogen is expected to play a key role in transport decarbonisation, but it is likely to be most effective in the areas 'that batteries cannot reach', where energy density requirements or duty cycles and refuelling times make it the most suitable low carbon energy source. This might include its use in heavy goods vehicles (HGVs), buses, rail, shipping, aviation and some specific duty cycle passenger vehicles.

We are supporting hydrogen's earlier development through the Hydrogen for Transport Programme. Providing **£23 million** in total from 2017 to 2022, the programme is supporting increased uptake of Fuel Cell Electric Vehicles (FCEV) and growing the number of publicly accessible hydrogen refuelling stations. There are around 300 FCEVs on UK roads today and 14 hydrogen refuelling stations in operation, which gives the UK one of the largest publicly accessible hydrogen refuelling stations for road vehicles in Europe.

To realise the full environmental benefits of FCEVs, the hydrogen used to fuel them must be low carbon. There are a variety of different ways to produce hydrogen, one of the greenest is via the process of electrolysis. This process can use clean electricity to electrolyse water, splitting it into hydrogen and oxygen (known as 'green' hydrogen). The levels of green hydrogen currently produced within the UK are low, although they are increasing, but not yet to the levels that would be needed to support mass uptake of hydrogen vehicles.

We are encouraging the development of green hydrogen transport technologies through our £3 million Tees Valley Hydrogen Hub. The hub will be the national epicentre for R&D trials that demonstrate the viability of a variety of hydrogen vehicles in a living lab context.

The upcoming UK Hydrogen Strategy will outline how hydrogen production within the UK will ramp-up over the course of this decade to meet the ambition for 5GW of low carbon hydrogen production capacity by 2030. This will be supported by a range of measures including a £240 million Net Zero Hydrogen Fund, as outlined within the Prime Minister's Ten Point Plan.

Commitment: We will publish a Hydrogen Strategy in 2021 to set out how we will develop the UK's hydrogen economy

Commitment: We will fund the Hydrogen for Transport programme until 2022

Source: ITM Power

Case study: Creating an anode supply chain for the UK

In November 2020, Talga began work to assess the feasibility of commercialising its silicon anode battery product in the UK, supported by £288,000 of funding from the Automotive Transformation Fund.

Silicon anodes are capable of increasing battery density, enabling electric vehicles to travel significantly longer distances.

This is one of 53 R&D projects to receive funding through the Automotive Transformation Fund. It has supported a better understanding of the potential for growth in this area, as well as scale up of engineering and process technology.

Green Jobs Taskforce

The Green Jobs Taskforce launched in November 2020 to develop plans for new, long term, good quality green jobs by 2030.

It will advise on what support is needed to ensure the UK workforce has the right skills to remain at the forefront of the design, manufacture and use of ZEVs. Such as upskilling vehicle technicians to be EV qualified and identifying the increase of workers required in the battery cell manufacturing sector.

The taskforce has published its report and list of recommendations. The evidence collected by the taskforce, and official recommendations, will feed into our Net Zero Strategy to be published later in the year, ahead of COP26.

Commitment: We will publish a Net Zero Strategy including the recommended actions of the Green Jobs Taskforce in 2021.

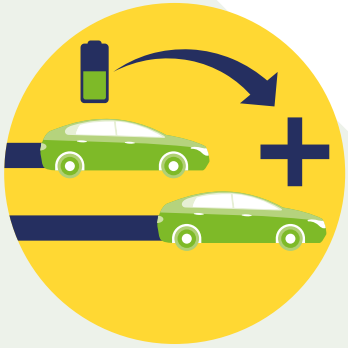
Research, development and innovation

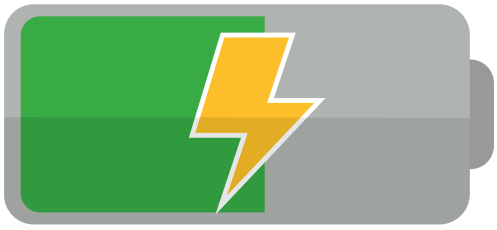
Key commitments

1. We have funded the Faraday Battery Challenge since 2017, with funding already confirmed until at least 2022 and remain committed to battery research, development and innovation in the UK
2. We will continue to provide late-stage R&D support for ZEV technologies through the £1 billion Advanced Propulsion Centre competitions (building on 8 years of investment), with funding confirmed to at least 2023
3. We have funded Driving the Electric Revolution Challenge since 2019, with funding already confirmed to at least 2025 and remain committed to scaling up supply chains for power electronics, electric motors, generators and drives.

The UK is a scientific superpower and has a globally renowned automotive R&D ecosystem. In the road towards mass adoption of ZEVs, there will need to be technological advances in battery technology and charging infrastructure to ensure ZEV ownership works for all motorists and their diverse needs.

Innovation funding is vital to bring about solutions to the current challenges in transitioning to ZEVs. Investing in research will also help meet our mission of putting the UK at the forefront of the design, manufacture and use of ZEVs. Our funding is supporting vehicle manufacturers, chargepoint and energy companies, technology companies and academia to develop and commercialise cutting-edge ZEV technologies.





Advances in battery technology have led to vast improvements in vehicle range, **from around 60 miles in the early Nissan LEAF models to 275 miles+** for some models today.

Average battery **costs have fallen by 85%** between 2010 and 2018, and are expected to continue to drop over the next ten years.

Source: Oxbox electric truck with solar powered refrigerated unit part-funded by the Office for Zero Emission Vehicles

Faraday Battery Challenge

The Faraday Battery Challenge (FBC) is a **£330 million** programme designed to create the innovation ecosystem needed for the UK to become a battery science superpower, to nurture and grow our battery companies and to attract large scale battery manufacturing.

It has three main delivery pillars:

1. The Faraday Institution: Bringing together universities and industry to drive world leading research into new electrical storage technologies.
2. Collaborative R&D through Innovate UK: Competitive funding for UK business to develop new and improved cost-effective battery technologies and build UK supply chains.
3. The UK Battery Industrialisation Centre (UKBIC): Based in Coventry, UKBIC is a purpose-built, world-class product development facility, which can be accessed by any organisation (from micro companies to large manufacturers) to engineer their battery prototypes ready for market.

Commitment: We will fund the Faraday Battery Challenge until at least 2022 and remain committed to battery research, development and innovation.

Source: Faraday Battery Challenge

Advanced Propulsion Centre

Government and industry have committed around **£1 billion** over 10 years though the Advanced Propulsion Centre for collaborative projects to research, develop, and commercialise the next generation of low carbon and ZEV technologies.

Projects funded to date are expected to save over 225 million tonnes of CO_2 and analysis shows that 150,000 UK-produced vehicles already benefit from APC-funded technology.

The APC runs three competitions per annum with approximately £75 million available across the year. Further details can be found on the APC website at https://www.apcuk.co.uk/.

Commitment: The APC will launch the APC19 R&D funding competition in 2021.

Commitment: We will fund the Advanced Propulsion Centre, jointly with industry, until at least 2023.

Case study: Facilitating the Electrification of Commercial Vehicles

The transition towards zero emissions can be particularly challenging for commercial vehicles (e.g. delivery vans) due to their weight. Coventry-based LEVC set themselves the task to address this challenge, supported by £17.5 million funding through the APC core competition.

The result was a light commercial vehicle with range extender which was flexible enough to be used in a number of applications – from delivery, construction and utilities companies to food and beverage suppliers needing refrigeration capability – demonstrating the versatility of this zero emission capable van.

As well as supporting jobs in the West Midlands, LEVC's success also benefits the wider UK supply chain with 89% of parts sourced from within the UK.

Driving the Electric Revolution

Driving the Electric Revolution Challenge, delivered by UK Research & Innovation (UKRI), provides **£80 million** to scale-up and unite UK supply chains to deliver fundamental components of electric vehicles and net zero – power electronics, electric motors, generators and drives (PEMD).

To date, Driving the Electric Revolution has invested:

- £12.7m in 40 projects to accelerate growth in UK PEMD supply chains that aim to reduce carbon emissions in the transport, energy and industrial sectors and underpin our net zero commitment.
- £33m in the Driving the Electric Revolution Industrialisation Centres, led by Newcastle University with centres in Sunderland, Strathclyde, Nottingham/ Warwick & Newport (South Wales). This complements the Catapult Network and delivers PEMD specific manufacturing equipment in an open access environment with the expertise to use it.

Commitment: We will fund UKRI to deliver the Driving the Electric Revolution programme until at least 2025 and will continue to support PEMD supply chain growth within the UK.

Office for Zero Emission Vehicles R&D programme

Since its creation, The Office for Zero Emission Vehicles (OZEV) has supported projects totalling more than **£400 million** of investment to support innovation and demonstrate vehicle and charging infrastructure technologies.

Commitment: We are investing £20 million in R&D funding for innovative projects seeking solutions to help remove key barriers in the transition to ZEVs in 2021/22.

Case Study: Urban Foresight

One of OZEV's currently funded projects is with Urban Foresight, who were awarded £3 million to develop pop-up chargers with manufacturers Urban Electric. The chargers rise up out of the pavement to provide a discreet, safe and low-cost EV charging solution to those without off-street parking.

The chargers are being installed in residential and public streets with on-street parking across Dundee and Plymouth. The project will also demonstrate a smart city user experience with in-ground parking sensors, making it easy for EV drivers to locate and pay for charging with a single app.

Source: Urban Foresight

Zero emission vehicles across the United Kingdom

Key commitments

1. We will convene governments representing almost half of the global automotive market to build momentum for the transition to zero emission vehicles through our COP26 presidency throughout 2021
2. More Clean Air Zones will be introduced by local authorities between 2021 and 2023
3. We will work closer than ever with local authorities, to encourage uptake of central government funding and ensure more widespread action in the transition to ZEVs.

The transition to ZEVs is happening globally, as well as in every corner of our union. We want the UK to take a leading role. We are working with international partners, devolved administrations and local authorities to implement this change.

The 2030 and 2035 phase out dates are commitments for the whole of the UK. Different local areas will require different solutions to boost clean transport and roll out the right mix of charging infrastructure. This will complement other strategies to improve local air quality such as increasing the use of public transport. Therefore, the devolved administrations and local authorities will play a key role in enabling the transition to ZEVs.

The UK's **first Clean Air Zone was launched in Bath** in 2021 and will help improve local air quality

Over **117 local authorities** have applied for central government funding to support installation of on-street EV chargepoints including new and innovative technologies.

Source: Dundee City Council

COP26

The Zero Emission Vehicles campaign of COP26 aims to double the pace of the transition by encouraging ambitious commitments from businesses, industry, national and sub-national governments.

The UK is leading the new Zero Emission Vehicle Transition Council, which comprises ministers and representatives from some of the world's largest and most progressive car markets. Having met for the first time in November 2020, the council aims to address the shared barriers that countries face and increase ambition internationally regarding the transition to ZEVs.

Devolved administrations

Our commitment to transitioning to zero emission vehicles is for the whole of the UK. The grants for plug-in cars and vans, as well as the grants for home, workplace and on-street chargepoints are all available UK-wide. Where funding is provided for England-only programmes, the devolved administrations will receive additional funding through the Barnett formula.

The Devolved Administrations in Scotland, Wales and Northern Ireland are taking their own steps through local incentives and regulations to promote the uptake of zero emission vehicles. We recognise and welcome their progress, and will continue to work with them to achieve this aim.

Northern Ireland

The Northern Ireland Department for Infrastructure is pursuing a range of initiatives to help realise the phase out of petrol and diesel cars and vans. These include support for green hydrogen production, and by making changes to the planning system to make it easier to expand the charging infrastructure for EVs.

- Support from the Hydrogen Transport Programme and investment from the Department for Infrastructure in NI will allow the installation of Ireland's first hydrogen refuelling station in Belfast. Three hydrogen double decker buses, manufactured in Northern Ireland by Wrightbus, will be deployed into Translink's metro bus fleet.
- In a £66 million investment by the Department for Infrastructure, 145 low and zero emission buses including 20 hydrogen buses are to be added to the Translink fleet over the next two years.
- An 'Executive Energy Strategy for Northern Ireland' options paper has recently been consulted on. This includes options for decarbonising transport, including measures to support modal shift, the electrification of transport, the use of alternative fuels in transport and the future of mobility.

Wales

Wales recognises the importance of the transition to ZEVs in meeting emissions targets, and is taking steps to set out its long-term strategy to support this transition.

- The Welsh Government published its EV Charging Strategy in March 2021. An action plan, which outlines the steps to meet the ambitions outlined in the EV Charging Strategy, was also be published in July 2021.
- A plan to deliver a Net Zero Wales will be published in November 2021. It will include consideration of emissions savings possible through a range of transport policy measures including uptake of ZEVs.
- The Welsh Public Sector has an ambition that all new cars and light goods vehicles in its fleet are ultra-low emission by 2025.

Scotland

Scotland has set out ambitious decarbonisation plans, committing to targets of achieving a 75% reduction in emissions by 2030, and achieving net zero emissions by 2045. In addition to these commitments, Scotland is investing heavily in EV uptake and infrastructure rollout.

- Through the Low Carbon Transport Loan programme, £85 million has been provided to help people and businesses make the switch to ultra-low emission vehicles. The loan has recently been widened to cover used EVs, expanding access to them at a range of price points.
- To promote range confidence and further encourage the uptake of EVs, over £45 million has been invested to grow ChargePlace Scotland, Scotland's public EV charging network.
- £47 million has been invested in Scotland to transition over 3,450 vehicles in the public sector fleet to ZEVs, with petrol and diesel cars to be phased out of the fleet entirely by 2025.

Source: ChargePlace Scotland

Supporting local authorities

Local authorities have a crucial role to play in enabling the transition to zero emission vehicles and addressing local air quality and climate emissions. Their leadership and action through local transport and planning policy can help support local ZEV uptake, and make sure it is integrated with wider local transport strategies.

Leading areas are supporting local EV infrastructure and electrifying their own fleet – including cars and vans but also specialist and heavy vehicles. For example, Nottingham City Council has a fully electric bin lorry, street sweepers, cage tippers and minibuses.

Developing place-based ZEV strategies and supporting EV charging infrastructure is a new and complex area for local authorities. This can lead to actual or perceived barriers, and potentially areas of poor provision.

It is important as we go forward that local areas join up transport planning and housing planning. This will be an important tool in leveraging greater levels of charging infrastructure in local areas.

The Government's National Planning Policy Framework provides direction to ensure that local authorities fully consider the inclusion of chargepoint infrastructure in all new developments. We will look to build on this with regulations to ensure new chargepoints are installed in homes and non-residential buildings.

Commitment: We will publish an EV infrastructure guide for local authorities in 2021 with the Institution of Engineering and Technology (IET) to assist with the transition to ZEVs.

We will continue to work to help mainstream capability and leadership, leading to local action to support ZEV uptake across every part of the UK. Chargepoint infrastructure and transitioning local authority fleets to ZEVs are two priority areas for this engagement – and government will be maximising strategic engagement opportunities, including working with existing government forums and structures.

Commitment: We will ensure authorities are aware of and accessing government support and funding (e.g. the On-Street Chargepoint Scheme) through a ZEV information support pack provided to all UK local authority CEOs.

Commitment: We will establish new forums to ensure all LAs are easily able to access best practice and materials, and are aware of wider UK ZEV policy.

We fund the Energy Saving Trust (EST) to run the Local Government Support Programme – an impartial advisory service which helps local authorities in England to develop local policies and strategies to support ZEV uptake.

Commitment: We will continue to fund the Local Government Support Programme and target areas of poor infrastructure provision

Commitment: We will work with EST on a series of webinars to support the sharing of best practice and expertise, and ensure local authorities are sighted on the national policy developments and direction

Joint Government and local authority action on addressing local air quality

Clean Air Zones empower local authorities to make targeted interventions to tackle nitrogen dioxide levels exceedances, including replacing older vehicles with ultra-low and zero emission vehicles.

Some local authorities are taking action by introducing charging Clean Air Zones, to reduce the levels of pollution in their communities. In 2021, charging has commenced in Bath and Birmingham. We are providing over £880 million to fund implementation and mitigation measures under the NO_2 Plan.

We have used nearly £400 million already to fund improvements, including upgrades to electric taxis in Nottingham, the installation of new EV charge points in Sheffield and Rotherham and bus upgrades in many cities. £1 million to Nottingham City Council to support the upgrade to electric taxis and the installation of new chargepoints in Sheffield and Rotherham.

Commitment: A number of local authorities will introduce Clean Air Zones between 2021 and 2023.

Commitment: We will provide £880 million to support local authorities improve air quality.

Case study: Local authority leadership

The Go Ultra Low City Scheme provided £40 million of funding to a cohort of 8 local authority areas to encourage thousands of people to consider switching to an electric car. Following the success of the scheme, (which has included development of best practice, 1000 on-street chargepoints and support for ZEVs in adjacent rural areas) the Go Ultra Low Cities have been proactive in leading the charge across the country and helping to level-up their communities.

Dundee City Council has implemented a scheme providing free parking in multi-storey car parks for EVs, and committed to replacing all of its fleets of cars, as well as small and medium vans, to EVs by the end of 2022.

The **City of York** published their EV Charging Strategy last year, setting out a 5-year plan to accelerate EV uptake through developing a world-class charging network. By the summer of 2021, York will have delivered 2 hyperhubs, which will consist of solar photovoltaic canopies, battery energy storage, and rapid chargers.

Across **London** boroughs since January 2018, TfL has only been licensing new taxis (black cabs) that are zero emission capable, and has offered a decommissioning fund to take the older, most polluting taxis out of circulation. There are now almost 4,000 zero emission capable taxis.

Key

Go Ultra Low City Scheme funded

Monitoring progress against this Delivery Plan

Our phase out dates have provided certainty to the market. The government is determined to develop the system transformation that is needed to underpin mass adoption of ZEVs on our roads. Success will come in the form of reduced greenhouse gas emissions, cleaner air in our town and cities and creation of new jobs and growth across the country.

We have developed this plan to detail the investments, policy changes and regulation that we will pursue over the coming years to meet our phase out dates. To ensure we are on track to meet our ambitions we will monitor progress against this plan using a number of key performance indicators.

	Key performance indicators	Progress	Date and source
1	**Average reported CO_2 emissions for cars and light goods vehicles (LGVs) registered for the first time in the UK (measured through WLTP).**	Cars: 134.5g CO_2 /km LGVs 204.9g CO_2 /km	DfT Vehicle Statistics 2020 – Table VEH0156
2	**Share of zero emission cars and light goods vehicles (LGVs) registered for the first time in the UK**	Cars: 6.5% (up from 1.6% in 2019) LGVs: 1.9% (up from 0.9% in 2019)	DfT Vehicle Statistics 2020 – Table VEH0253 and VEH0453
3	**Total number of ultra-low and zero emission vehicles on UK roads**	Over 500,000	Society of Motor Manufacturers and Traders – 5 May 2021
4	**Number of affordable zero emission cars on the market**	Models £30k-£35k: 14 Models under £30k: 14 Models under £20k: 0	DfT internal analysis (excluding PICG)
5	**The total number of public chargepoints across the UK, and number of rapid chargepoints.**	Total chargepoints: 22,790 Rapid chargepoints: 4,259	DfT Infrastructure statistics - April 2021

Key performance indicators		Progress	Date and source
6	Number of homes, workplaces and local authorities supported through our charging infrastructure grant schemes	**Homes:** 177,063 **Workplaces:** 13,586 sockets **Local authorities:** 117	DfT Infrastructure statistics - April 2021
7	Production of zero emission vehicles in the UK as a percentage of all cars and vans built	6.1%	Society of Motor Manufacturers and Traders – 2021 Year To Date

Commitment: We will report progress against our key performance indictors and update this plan regularly.

Commitment: We will conduct a full progress review towards out phase out dates by 2025.

Annex 1
List of commitments

Increasing uptake of zero emission vehicles

Commitment: We will aim to introduce a new road vehicle CO^2 emissions regulatory regime in 2024.

Commitment: We will continue to fund the plug-in car grant until at least 2022/23.

Commitment: Zero emission cars will continue to benefit from favourable CCT rates until at least March 2025.

Commitment: We will continue to fund the plug-in van grant until at least 2022/23.

Commitment: We will review the Category B derogation in 2021.

Commitment: We will accelerate our fleet commitment. 100% of our car and van fleet will be fully zero emission at the tailpipe by 2027. As the UK's second largest fleet, this will see over 40,000 vehicles move to zero emission vehicles.

Accelerating infrastructure roll-out

Commitment: We are investing £1.3 billion to accelerate the rollout of charging infrastructure on motorways, on streets, in homes and workplaces

Commitment: We will publish an EV Infrastructure Strategy in 2021.

Commitment: We will support the private sector to deliver at least 6 high powered chargepoints at every motorway service area in England by 2023.

Commitment: We will invest £950 million to upgrade electricity connections at motorway service areas across England's motorways and A-roads to enable private sector investment in new chargepoints.

Commitment: We will support provision of on-street chargepoints until at least 2024/25.

Commitment: We will launch the Local Infrastructure Fund by Summer 2022.

Commitment: We will publish the response to the consultation soon and aim to lay regulations in 2021 to mandate EV chargepoint provision in new homes.

Commitment: Ofgem is considering changing the way charges for connecting to the electricity network are allocated. It has recently published a consultation proposing that all network reinforcement costs should be socialised across energy bill payers in future. This should often reduce the costs of connecting EV chargepoints to the network. Any changes are expected to come into force in 2023.

Commitment: We will shift the support of the EVHS to focus on leaseholders, renters and those living in flats from April 2022.

Commitment: We will continue to fund EVHS until at least 2024/25

Commitment: We will continue to fund the WCS until at least 2024/25

Commitment: We will invest up to £200m [into the Charging Infrastructure Investment Fund] to be matched by private investors.

Commitment: We will publish the government response and lay regulations in 2021 to ensure that consumers have a positive experience when using the charging network and want to drive an EV.

A sustainable transition

Commitment: We have published our smart charging consultation response and later this year we will legislate to mandate that all private chargepoints must be smart.

Commitment: We will publish with Ofgem a second phase of the Smart Systems and Flexibility Plan (SSFP) in 2021 to set out reforms needed to secure flexibility across the energy system, including electric vehicles.

Commitment: We will, in conjunction with Ofgem, publish a plan to maximise the contribution of EV flexibility in 2022.

Commitment: We will publish a call for evidence for V2X technologies in a net zero energy system.

Commitment: We will publish a consultation on domestic batteries legislation in 2021 to ensure we have an appropriate legal framework governing the increasing numbers of EV batteries

Commitment: We will continue to progress research and other initiatives to reduce our dependency on raw mineral supply and make better use of global resources.

Increasing supply for increasing demand

Commitment: We will provide £500 million through the Automotive Transformation Fund until 2025 to build an internationally competitive electric vehicle supply chain in the UK.

Commitment: We will publish a Hydrogen Strategy in 2021 to set out how we will develop the UK's hydrogen economy.

Commitment: We will fund the Hydrogen for Transport programme until 2022.

Commitment: We will publish a Net Zero Strategy including the recommended actions of the Green Jobs Taskforce in 2021.

Research, development and innovation

Commitment: We will fund the Faraday Battery Challenge until at least 2022 and remain committed to battery research, development and innovation.

Commitment: The APC will launch the APC19 R&D funding competition in 2021

Commitment: We will fund the Advanced Propulsion Centre, jointly with industry, until at least 2023.

Commitment: We will fund UKRI to deliver the Driving the Electric Revolution programme until at least 2025 and will continue to support PEMD supply chain growth within the UK.

Commitment: We are investing £20 million in R&D funding for innovative projects seeking solutions to help remove key barriers in the transition to ZEVs in 2021/22.

Zero emission vehicles across the United Kingdom

Commitment: We will convene governments representing almost half of the global automotive market to build momentum for the transition to zero emission vehicles through our COP26 presidency throughout 2021.

Commitment: We will publish an EV infrastructure guide for local authorities in 2021 with the Institution of Engineering and Technology (IET) to assist with the transition to ZEVs.

Commitment: We will ensure authorities are aware of and accessing government support and funding (e.g. the On-Street Chargepoint Scheme) through a ZEV information support pack provided to all UK local authority CEOs

Commitment: We will establish new forums to ensure all LAs are easily able to access best practice and materials, and are aware of wider UK ZEV policy

Commitment: We will continue to fund the Local Government Support Programme and target areas of poor infrastructure provision

Commitment: We will work with EST on a series of webinars to support the sharing of best practice and expertise, and ensure local authorities are sighted on the national policy developments and direction.

Commitment: A number of local authorities will introduce Clean Air Zones between 2021 and 2023.

Commitment: We will provide £880 million to support local authorities improve air quality.

Monitoring progress against this Delivery Plan

Commitment: We will report progress against our key performance indictors and update this plan regularly.

Commitment: We will conduct a full progress review towards out phase out dates by 2025.

Annex 2
List of measures index