NORTH FALLS

Offshore Wind Farm

ENVIRONMENTAL STATEMENT

Chapter 2 Need for the Project

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Glossary of Acronyms

BEIS	Department for Business, Energy and Industrial Strategy
CCC	Climate Change Committee
CfD	Contract for Difference
COP	Conference of Parties
CO_2	Carbon dioxide
DCO	Development Consent Order
DECC	Department for Energy and Climate Change
DESNZ	Department for Energy Security and Net Zero
FTE	Full-Time Equivalent
GW	Gigawatt
HM	His Majesty
IPCC	Intergovernmental Panel on Climate Change
kV	Kilovolt
LCOE	Levelised Cost of Energy
LQ	Location Quotient
$MtCO_2e$	Metric tonnes of carbon dioxide equivalent
MW	Megawatt
MWh	Megawatt hour
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
Ofgem	Office of Gas and Electricity Markets
OTNR	Offshore Transmission Network Review
SEA	Strategic Environmental Assessment
TWh	Terawatt hour
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change

Glossary of Terminology

The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Project Or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.

Five Estuaries	Five Estuaries Offshore Wind Farm
LCOE	LCOE is a measure of the energy system cost per energy unit generated from an asset over its lifetime and is calculated using a discounting methodology, including capital and operating costs as well as anticipated in-life capital and operating expenditure.
Location Quotient (LQ)	Location quotient (LQ) is a measure of a region's industrial specialisation relative to a larger region (e.g. Great Britain). A LQ of 1.0 indicates that both regions have the same level of specialisation, whereas a LQ > 1.0 means that the smaller region has a higher concentration of a particular sector than is seen in the larger region.
Marginal Wholesale Price	The marginal cost pricing system prices electricity from all sources according to the most expensive source.

1. NEED FOR THE PROJECT

1.1 Introduction

1. This chapter of the North Falls Environmental Statement (ES) presents an overview of the importance of North Falls Offshore Wind Farm (herein 'North Falls' or 'the Project') in contributing to policy commitments. This includes international and national UK policy commitments for renewable energy, as well as wider policy objectives for UK energy security, decarbonisation and socio-economic benefits which highlight the need to develop the Project.

1.2 The relevant National Policy Statements

1.2.1 Overview

2. Applications for Development Consent Orders (DCOs) enabling the lawful construction and operation of NSIPs are considered by the Planning Inspectorate and determined by the Secretary of State of the relevant UK Government department with respect to the policies set out in the applicable National Policy Statement (NPS).

3. The NPS were first prepared by the UK Government in 2011 (DECC, 2011), under the Planning Act 2008 and revised versions of the NPS for energy infrastructure (EN-1 to EN-5) came into force in January 2024 (DESNZ, 2024a). They set out the need and urgency for new energy infrastructure, with a framework against which major infrastructure projects should be assessed. The Overarching NPS for Energy, EN-1, at paragraph 3.3.58 of the extant NPS EN-1 states:

   "Given the urgent need for new electricity infrastructure and the time it takes for electricity NSIPs to move from design conception to operation, there is an urgent need for new (and particularly low carbon) electricity NSIPs to be brought forward as soon as possible, given the crucial role of electricity as the UK decarbonises its economy."

4. The Planning Act 2008 requires that the NPS include an explanation of how it takes into account government policy relating to the mitigation of, and adaption to, climate change. The NPS also support the need to contribute to a secure, diverse and affordable energy supply. The NPS relevant to the Project are:

   - Overarching NPS for Energy (EN-1), which sets out national policy for energy infrastructure in the UK;
   - NPS for Renewable Energy Infrastructure (EN-3), which sets out policies relevant to nationally significant renewable energy installations (including offshore generating stations in excess of 100MW); and

- NPS for Electricity Networks Infrastructure (EN-5), which sets out policies regarding new electricity network infrastructure associated with an NSIP.

5. Applications for development consent for the types of infrastructure covered by the energy NPS should be assessed by the Secretary of State on the basis that the UK Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described within Part 3 of the Overarching NPS EN-1. In addition, point 3.2.7 of NPS EN-1 outlines that substantial weight should therefore be given to the contribution which a project would make towards satisfying this need when considering applications for development consent under the Planning Act 2008 (DESNZ, 2023a).

1.2.2 Overarching National Policy Statement EN-1

6. The reasons underpinning the case for action as stated in the original version of NPS EN-1 published in 2011 (DECC, 2011) have progressed as a result of:

   a) A growing urgency, informed by developing scientific opinion, to reduce carbon emissions both on a global and local scale;

   b) A slower than expected rate of progress made by other low-carbon technologies and initiatives which were expected to deliver a low-carbon electricity system; and

   c) Reduced energy supply in the global market, leading to increased cost of energy and reduced energy security.

7. A key update is that the extant NPS EN-1 (DESNZ, 2023a) states that low carbon infrastructure is now a critical national priority at paragraph 3.3.62 as follows:

   "*Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant new low carbon infrastructure.*"

8. The fundamental need for large-scale energy-generation infrastructure set out within the 2011 NPS EN-1 is reiterated and strengthened within the extant NPS EN-1 and is now based on the UK's legal commitment to reach Net Zero by 2050 in order to limit global average temperatures to well below 2°C above pre-industrial levels (Climate Change Committee (CCC), 2020a). Furthermore, the pathway to reaching this goal, as set out in the UK's Net Zero Strategy (HM Government, 2021a) and reiterated in Powering up Britain (DESNZ, 2023e) now includes the target of decarbonising the energy sector by 2035 and using renewable energy to power electrification of parts of the heating and transport sectors, putting an additional demand on the energy sector, and specifically, the electricity market. Paragraph 2.3.7 of the NPS EN-1 states that (DESNZ, 2023a):

   "*Using electrification to reduce emissions in large parts of transport, heating and industry could lead to more than half of final energy demand being met by electricity in 2050, up from 17 per cent in 2019, representing a doubling in demand for electricity*."

9. This point is further emphasised in paragraph 3.3.3 of the NPS EN-1 (DESNZ, 2023a), which stipulates that:

"…demand for electricity is likely to increase significantly over the coming years and could more than double by 2050 as large parts of transport, heating and industry decarbonise by switching from fossil fuels to low carbon electricity. The Impact Assessment for CB6 [the Sixth Carbon Budget] shows an illustrative range of 465-515TWh in 2035 and 610- 800TWh in 2050."

10. The Government's intention is to develop an integrated, diverse energy supply system which relies on low-carbon electricity generation for a significant proportion of its supply. Paragraph 2.1.6 of the NPS EN-1 notes that (DESNZ 2023a):

"This energy NPS considers the large-scale infrastructure which will be required to ensure the UK can provide a secure, reliable, and affordable supply of energy, while also meeting [the UK Government's] decarbonisation targets."

"Meeting these [decarbonisation] objectives necessitates a significant amount of new energy infrastructure, both large nationally significant developments and small-scale developments determined at the local level." (paragraph 2.3.4)

11. As explained in Section 3.3 of the NPS EN-1, large capacities of low-carbon generation will be required to ensure that there is sufficient electricity to meet increased demand, to replace output from retiring plants and to ensure there is sufficient margin in our supply to accommodate unexpectedly high demand and mitigate risks such as unexpected plant closures and extreme weather events.

12. NPS EN-1 concludes that there is an urgent need for new electricity generating capacity to meet our energy objectives. Moreover, at paragraph 3.3.20, NPS EN-1 states that "*a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar*" (DESNZ, 2023a).

13. NPS EN-1 also notes the crucial national benefits of increased system robustness through the delivery of new electricity generation assets and network infrastructure. Integrating new offshore generation assets with the existing transmission network is an essential component for any energy generation project and key to delivering the benefits (i.e. decarbonisation) associated with the Project. NPS EN-1 states that a more co-ordinated approach to developing offshore wind farms is expected, although point 3.3.81 notes that '*the importance of accelerating coordination does not, however, militate against the need for standalone electricity networks projects, and these projects are supported by this NPS and should continue to be assessed on their own merits.'* Therefore, standalone projects continue to be supported by the NPS. North Falls' approach to coordinating with the nearby Five Estuaries Offshore Windfarm is discussed in Chapter 1 Introduction (Document Reference: 3.1.3) and Chapter 5 Project Description (Document Reference: 3.1.7) of the ES.

14. Paragraph 3.3.72 of NPS EN-1 highlights that 'connecting the volume of offshore wind capacity targeted by the government will require not only new offshore transmission infrastructure but also reinforcement to the onshore transmission network, to accommodate the increased power flows to regional demand centres. According to Paragraph 3.3.78 of NPS EN-1 (DESNZ, 2023a):

"*It is recognised that the case for a new connection or network reinforcement is demonstrated if the proposed development represents an efficient and economical means of:*

- *connecting a new generating station or storage facility to the network;*
- *reinforcing the network to accommodate such connections; or*
- *reinforcing the network to ensure that it is sufficiently resilient and capacious (per any performance standards set by Ofgem) to reliably supply present and/or anticipated future levels of demand*."

15. Essentially NPS EN-1 supports large-scale offshore wind electricity generation assets, presenting such development as a key part of the national strategy to achieving the UK Government's legally binding target to reach Net Zero by 2050.

1.2.3 National Policy Statement for Renewable Energy Infrastructure (EN-3)

16. NPS EN-3 supports the policy framework set out within the Overarching NPS EN-1, with specific reference to renewable energy infrastructure. NPS EN-3 does not seek to repeat or replace policies set out within Overarching NPS EN-1 (unless expressly stated). Instead, the policies contained within NPS EN-3 are additional to those set out in the Overarching NPS EN-1. As such, both NPS EN-1 and EN-3 need to be considered in conjunction with one another.

17. The language in the extant NPS EN-3 regarding the necessity and urgency of electricity generation from renewables has been strengthened since the 2011 NPS in light of recent changes to UK Government targets, with Section 1.1.2 recognising that "*Electricity generation from renewable sources of energy is an essential element of the transition to net zero and meeting our statutory targets for the sixth carbon budget (CB6)*".

18. Section 2.8.7 of NPS EN-3 (DESNZ, 2023b) states that: "Given ambitions to deliver up to 50GW of offshore wind by 2030… there is a need to speed up, and reduce delays in, the consenting process."

19. Regarding connections to the national transmission network, point 2.8.34 of NPS EN-3 states that *"a more co-ordinated approach to offshore-onshore transmission is* required*."* Point 3.8.35 explains that the previous standard approach to offshore-onshore connection involved individual connections between a single wind farm and the shore, whereas "*coordinated approach will involve the connection of multiple, spatially close, offshore wind farms and other offshore infrastructure, wherever possible, as relevant to onshore networks."*

20. As outlined in ES Chapter 1 Introduction (Document Reference: 3.1.3), ES Chapter 4 Site Selection and Assessment of Alternatives (Document Reference: 3.1.6) and discussed further in ES Chapter 5 Project Description (Document Reference: 3.1.7), NFOW is reviewing build out options for the Project's onshore electrical connection point that enable it to seek to reduce environmental and social effects while meeting its objectives and contributing to Government targets for offshore wind delivery. These options include:

- Option 1: Onshore electrical connection at a National Grid connection point within the Tendring peninsula of Essex, with a project alone onshore cable route and onshore substation infrastructure;
- Option 2: Onshore electrical connection at a National Grid connection point within the Tendring peninsula of Essex, sharing an onshore cable route (but with separate onshore export cables) and co-locating separate project onshore substation infrastructure with Five Estuaries; or
- Option 3: Offshore electrical connection, supplied by a third party.

21. Options 1 and 2 have involved co-ordination with Five Estuaries and the transmission infrastructure for both options has been designed as a single site selection process. As such, although Option 1 considers North Falls infrastructure in isolation, if it is constructed, efficiencies arising from co-locating infrastructure with Five Estuaries through co-ordinated site selection will still have been realised.

1.2.4 National Policy Statement EN-5

22. As with NPS EN-3, NPS EN-5 does not repeat or replace policies set out within Overarching NPS EN-1 (unless expressly stated). Instead, the policies contained within NPS EN-5 are additional to those set out in the Overarching NPS EN-1. As such, both NPS EN-1 and EN-5 need to be considered in conjunction with one another.

23. As with the Overarching NPS EN-1 and NPS EN-3, the extant NPS EN-5 represents a strengthening of the language (compared to the superseded 2011 NPS) around the need for lower-carbon electricity generation assets in line with the overall strategy for reaching Net Zero by 2050. Paragraphs 1.1.2 and 1.1.33 of NPS EN-5 (DESNZ, 2023c) state:

"A significant amount of new network infrastructure is required in the near term to directly support the government's ambition to deploy up to 50GW of offshore wind capacity (including up to 5GW floating wind) by 2030. There is an expectation that there will be a need for substantially more installed offshore capacity beyond this to achieve net-zero by 2050."

"The electricity network infrastructure to support the government's offshore wind ambition is as important as the offshore wind generation infrastructure. Without the development of the necessary networks to carry offshore wind power to where it is needed in the UK, the offshore wind ambition cannot be achieved."

24. Section 2.2 of NPS EN-5 (DESNZ, 2023c) specifically relates to the site selection of projects and recognises that the location for new electricity network infrastructure is a function of both the location of new generating stations requiring connection to the network and/or the system capacity and resilience requirements determined by the electricity system operator (see paragraph 2.2.2). It notes that such constraints, coupled with the UK Government's legally binding commitment to Net Zero by 2050 and strategic commitments to new interconnectors with mainland Europe and 50GW of offshore wind generation capacity, will mean very significant new electricity network infrastructure construction will be required.

1.3 Need for renewable energy and to reduce greenhouse gas emissions

1.3.1 Climate change

25. The Sixth Assessment Report (IPCC, 2023) states that:

"Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850–1900 in 2011–2020".

26. According to the IPCC AR6 Synthesis Report (IPCC, 2023), human-induced climate change is already affecting weather and climate extremes in every region globally. Many extreme weather events can be linked to climate change, with human-induced warming affecting both the intensity and frequency of events. The extant NPS EN-1 recognises the importance of both reducing greenhouse gas emissions (climate change mitigation) and adaption and resilience to climate change, noting at point 4.10.2 that:

"Climate change is already altering the UK's weather patterns and this will continue to accelerate depending on global carbon emissions. This means it is likely there will be more extreme weather events. As well as climatic and seasonal changes such as hotter, drier summers and warmer, wetter winters, there is also a likelihood of increased flooding, drought, heatwaves, and intense rainfall events, as well as rising sea levels, increased storms and coastal change."

27. Observed impacts of climate change globally include (IPCC, 2023):

- An increase frequency of extreme weather events such as flooding and drought, impacting cities, settlements and infrastructure;
- An impact on water availability and food production;
- An impact on human health and wellbeing, including from infectious diseases, heat, mental health and displacement; and
- An impact upon ecosystems, including extinction of species.

28. As stated at paragraph 25, global warming has reached 1.1˚C and the IPCC Sixth Assessment Report (IPCC, 2023) predicts a median global warming of 2.2˚C to 3.5˚C (very likely range) by 2100 if policy ambition and action does not increase. All global modelled pathways that limit warming to 2°C or lower

by 2100 involve rapid and deep and in most cases immediate GHG emissions reductions in all sectors.

29. Within the UK, The State of the UK Climate Report (Royal Meteorological Society, 2023) determined that the UK's climate continues to change, with recent decades being warmer, wetter and sunnier than the 20th century. Of note, 40°C was recorded in the UK for the first time in 2022 and 2022 was the first year to record a UK annual mean temperature above 10°C. All of the top-10 warmest years for the UK in the series from 1884 have occurred within the 21st century and five of the 10 wettest years for the UK in a series from 1836 have occurred within the 21st century. For the most recent decade (2013-2022), UK winters have been 10% wetter compared to 1991-2020 and 25% wetter than 1961-1990.

30. A climate emergency was declared by UK Parliament in May 2019. Many local authorities have also declared a climate emergency in recognition of the climatic impacts and ecological decline imparted by human activities. Whilst Essex County Council has not declared a climate emergency, multiple district councils which fall within the Essex County Council administrative area, including Tendring District Council where the North Falls onshore infrastructure will be located, have declared an emergency. Table 1.1 below sets out a list of district councils within Essex County Council, whether they have declared a climate emergency, and when.. Similarly, the neighbouring County Councils of Hertfordshire, Cambridgeshire, Suffolk and Kent all declared a climate emergency at various times during 2019.

Table 1.1: Declaration of Climate Emergency by District Councils within Essex County Council Administrative Area

District Council	Declaration of Climate Emergency (Y / N)	Date
Basildon Borough Council	N	-
Braintree District Council	Y	July 2019
Brentwood Borough Council	N	-
Castle Point District Council	N	-
Chelmsford City Council	Y	16 July 2019
Colchester Borough Council	Y	17 July 2019
Epping Forest District Council	Y	19 September 2019
Harlow District Council	Y	11 July 2019
Maldon District Council	Y	4 February 2021
Rochford District Council	N	-
Tendring District Council	Y	6 August 2019
Uttlesford District Council	Y	30 July 2019

31. According to the IPPC AR6 report (IPCC, 2023), the supply of energy via solar and wind farms are climate change mitigation measures which offer the greatest potential contribution to net emission reduction and scaling up climate

action. As explained in paragraph 1.212 of this ES chapter, NPS EN-1 also concluded that wind and solar are key to reducing greenhouse gas emissions.

32. The Queen's Speech in May 2021 (HM Government, 2021) confirmed that the UK will continue to take steps to meet the world-leading target of net zero greenhouse gas emissions by 2050 and will continue to lead the way in tackling global climate change. This was further emphasised in the 2022 Queen's Speech (HM Government, 2022a) which reflected the need for clean, affordable and secure energy. Sustained net-zero anthropogenic emissions of greenhouse gas over a multi-decade period may present an opportunity to slow or even halt global warming. The King's Speech in November 2023 (HM Government, 2023) also states that the "*Government will continue to lead action on tackling climate change…helping the county to transition to net zero by 2050"* and *"will seek to attract record investment in renewable energy sources".*

1.4 Key Policy Drivers

1.4.1 Climate Change Targets

33. This section provides an outline of UK targets that support the need for the Project, given the Project's contribution to these targets. Further detail on UK legislation that has been put in place to secure a reduction in emissions is provided in ES Chapter 3 Policy and Legislative Context (Document Reference: 3.1.5).

34. The need for renewable energy, which North Falls would provide, is driven by national legislation and policy including the Climate Change Act 2008 (as amended) and the NPS, as above. The Climate Change Act 2008 (2050 Target Amendment) Order 2019 sets a legally binding target to ensure that the net UK carbon account is lower than the "1990 baseline" by 100% by 2050. This 100% reduction is equivalent to achieving 'net zero' CO_2 emissions.

35. The UK is a party to the United Nations Framework Convention on Climate Change (UNFCCC), an international environmental treaty adopted in 1992. The UK made a commitment during the 21st Conference of the Parties (COP), hosted in Paris in 2015, to pursue efforts to limit the global temperature increase to within 2°C of the preindustrial average temperature, with an aspiration for an improved limit of 1.5°C. This commitment is implemented through the UK's Carbon Budget, with the sixth Carbon Budget committing to a 78% reduction in carbon emissions by 2035, compared to emission levels in 1990 (CCC, 2020a). The UK's Carbon Budgets are set by way of Carbon Budget Orders, in compliance with obligations arising under the Climate Change Act 2008. The sixth Carbon Budget was set by the Carbon Budget Order 2021.

36. As set out in the Delivering a reliable decarbonised power system report (CCC, 2023), *"a* decarbonised *power system is the central requirement for achieving Net Zero".* The CCC (2023a) recommends that "*renewables,*

especially offshore wind, should form the backbone of the future [decarbonised] system".

1.4.2 Renewable Electricity Generation Targets

37. The need for renewable energy including offshore wind is supported by a number of UK government strategies which all outline that low carbon energy is needed to support wider decarbonisation and meet the UK net zero targets. These UK government strategies include:

- Clean Growth Strategy- this strategy published in 2017 sets out proposals for the decarbonisation of all sectors of the UK economy through the 2020s. It recognises that the UK needs a range of energy generation infrastructure to ensure a reliable and affordable energy supply for consumers as well as to meet national and international commitments to tackle climate change.

- In 2019 the Offshore Wind Sector Deal was adopted by the Government and the offshore wind sector to build on the UK's global leadership in offshore wind, maximising the advantages for UK industry from the global shift to clean growth. The Sector deal provided a target of delivering 30GW of energy from offshore wind by 2030.

- Ten Point Plan for a Green Industrial Revolution- published in 2020, this strategy outlines a green economic response to coronavirus and includes a focus on advancing offshore wind, setting a target for 40GW of offshore wind by 2030 (now 50GW as stated in the British Energy Security Strategy).

- Powering our Net Zero Future- building on the Ten Point Plan, this energy white paper published in 2020 outlines how the UK will decarbonise its energy system, promote green jobs and reach net zero emissions by 2050.

- Net Zero Strategy: Build Back Greener- this strategy published in 2021 also builds on the Ten Point Plan and sets out an approach to meet the UK Carbon Budgets and net zero by 2050.It includes the target to have a low carbon electricity supply by 2035.

- British Energy Security Strategy (BESS)- published in 2022, this strategy builds on the Net Zero Strategy to outline the acceleration of UK power for greater energy independence and long-term security in light of rising global energy prices. It also aims to increase the pace of offshore wind deployment by 25% and sets the target of 50GW of offshore wind by 2030 which is the latest Government target for offshore wind.

- Powering Up Britain- these plans published in 2023 set out how the Department for Energy Security and Net Zero aims to improve the UK's energy security, maximise economic opportunities of the net zero transition and reach net zero by 2050. This includes the aims of doubling

Britain's electricity generation capacity by the late 2030s and fully decarbonising the power sector by 2035. The plans also outline investment in key industries including offshore wind.

- Offshore Wind Net Zero Investment Roadmap- as noted in Powering Up Britain, this roadmap published in 2023 outlines the investment needed for offshore wind, summarises government policy and funding and provides investors with suitable information to support investment decisions.

38. Since 2014, the UK Government has run the Contract for Difference (CfD) scheme which is a mechanism for supporting low carbon electricity generation. Developers who are successful in an allocation round are paid a flat indexed rate for the electricity they produce over a 15 year period, which incentivises investment in renewable energy by providing developers with protection from volatile wholesale prices, as well as minimising costs to consumers.

39. To further incentivise the market for renewable sources of electricity generation since May 2019 the UK Government has run CfD application rounds for less established technologies (such as offshore wind) every two years. This practice reaffirms the UK Government's support for renewable technologies. Via a Ministerial Statement from BEIS (dated 9 February 2022), the UK Government announced that in order to accelerate the deployment of low-carbon power generation the frequency of the CfD rounds would become annual from 2023.

40. It should be noted however that in the fifth round of the CfD allocation there are no new offshore wind project contracts (DESNZ, 2023j). This is despite there being the potential for 5GW of projects. The starting price for the auction was higher than in the last round, at £44/MWh, but this did not account for escalating supply chain costs faced by the offshore wind industry.. This poses a risk to the UK's plan to reach 50GW by 2030 and in turn the decarbonised electricity system by 2035 and the 2050 net zero target, highlighting the importance and urgency of North Falls to contribute to the above targets. Since then, the UK Government have announced the budget for the sixth round of the CfD, with an increase in price of 66% from £44/MWh to £73/MWh for offshore wind projects.

41. The first National Infrastructure Assessment recommended that the UK Government aim to deliver at least 50% renewable generation by 2030, equating to between 12 and 19GW of offshore wind being deployed in addition to the current pipeline (The National Infrastructure Commission, 2018). As noted in the extant NPS, the second National Infrastructure Assessment (NIA) (National Infrastructure Commission, 2023) recognises the progress made in increasing renewable electricity generation but highlights key challenges in decarbonising energy and meeting the net zero target. The second NIA states that "*Government should accelerate the deployment of offshore wind, onshore wind and solar power*". The commission also estimates through modelling that by 2035 around 60GW of offshore wind will be needed to decarbonise the power system (Aurora Energy Research, 2023). Only 14.7GW of energy is currently generated by offshore wind farms in the UK (Renewable UK, 2023),

highlighting the deficit and need for new projects to be consented. This point is expanded on in section 1.5 below.

42. New offshore wind projects such as North Falls represent a source of renewable energy which affords a wide range of benefits to the UK, including (but not limited to) economic growth, energy security and decarbonisation of a key industry. The Project will make a contribution to the UK's renewable energy supply and consequently help provide the above-mentioned benefits to the UK and more globally.

1.5 Need for energy security

43. The Project would further help fulfil future increasing demand for energy, particularly in light of the decommissioning of UK coal-fired energy generation assets and at the time of writing, reduced global supply of gas from Russia (see paragraph 1.545).

1.5.1 Global imports

44. Reliance on global markets for imported energy leaves the UK vulnerable to spikes in world energy market prices, political pressure, potential physical supply disruptions and the knock-on effects of supply challenges in other countries. For example, a significant proportion of France's nuclear plants were closed during 2022 due to planned maintenance, damage to facilities and very hot weather. The UK has therefore been using more gas power stations to supply France, via 3GW of electricity interconnectors. While interconnectors can improve security of supply by providing the potential for electricity import, they can also increase the burden on domestic supply when the countries to which they are connected have increased energy needs and the UK grid therefore has to export electricity.

45. Fossil fuels have become increasingly expensive amid global events such as the war in Ukraine. The UK's reliance on fossil fuels has therefore caused an increase in electricity bills given that gas sets the marginal wholesale electricity price. To expand, the marginal cost pricing system prices electricity from all sources according to the most expensive source. As such, even though the cost of renewable generation has decreased significantly, the marginal wholesale electricity price is largely determined by the price of natural gas. As noted in Powering up Britain (DESNZ, 2023e):

"When Putin invaded Ukraine in February 2022, it exposed mainland Europe's over dependence on Russian gas…Since the end of February 2022, average wholesale gas and electricity prices have been over three times higher than their average over the preceding four years."

46. In 2023, the King's Speech (HM Government, 2023) stated that "Legislation will be introduced to strengthen the United Kingdom's energy security and reduce reliance on volatile international energy markets and hostile foreign regimes" and the UK Parliament passed the Energy Act 2023 which aims to

increase domestic energy supply and facilitate the development of offshore wind. This indicates that the maximisation of energy self-sufficiency is a key policy driver, which therefore supports the need for UK renewable energy generation projects such as North Falls.

1.5.2 Decommissioning of fossil fuel and nuclear generating stations

47. With the transition to decarbonisation and given that some existing fossil fuel and nuclear-powered electricity generation stations are coming to the end of their operational lives, there is a need to replace the generating-output of old infrastructure being decommissioned with sources of renewable energy.

48. Electricity generation in the UK fell by 2.4% between 2018 and 2019 and by 15% between 2010 and 2019 (BEIS, 2020c), highlighting the need for new infrastructure to deliver a secure national energy supply as part of a long-term sustainable energy policy and to support the UK Government's decarbonisation and net zero policies and targets listed in paragraph 37 of this chapter.

49. In 2022, electricity supply from coal fell to a record low of 5.1TWh, "With the Drax and West Burton coal units closed in Spring 2023, just two coal plants remain operational in the UK, with coal use for electricity generation expected to cease completely by October 2024" (DESNZ, 2023d).

50. As stated in the UK Energy in Brief, 2023 (DESNZ, 2023d) "A drop in peak demand [for gas and electricity] in 2018/19 and an increase in renewable generation capacity saw the [electricity capacity] margin rise to 43% before falling back around 32% in 2020/21 to 2022/23 as additional renewables, particularly offshore wind, did not fully offset the closure of coal-fired and nuclear plants." This highlights the need for greater renewable energy generating capacity to offset the closure of coal-fired plants while meeting the sixth carbon budget. Renewable electricity generation is an integral part of the UK energy mix and requires maintaining and expanding to ensure a secure supply for future decades.

1.6 Need to increase low carbon sources of electricity generation

51. In light of the need to reduce greenhouse gas emissions and increase energy security, offshore wind farms represent an opportunity to increase electricity generation from a low carbon, low cost, renewable source.

52. The UK Energy In Brief (DESNZ, 2023d) summarises the Digest of UK Energy Statistics on energy production, consumption, prices and climate change in the UK. Figures show:

- Renewable electricity accounted for 41.5% of electricity generated in the UK during 2022, 2 percentage points higher than in 2021 and the second highest on record after 2020 (42.7%); Electricity from renewable sources

increased by 10.5% between 2021 and 2022 to 135.0TWh, a new record figure; and

- Total wind generation increased by nearly 24% to 80.3TWh, with an offshore wind capacity increase of nearly 24%.

53. As a result of the measures taken, there has been a 69% decrease in greenhouse gas emissions from the energy supply sector since 1990 (DESNZ, 2023d). However, energy supply was responsible for 20% of total greenhouse gas emissions in 2021 (DESNZ, 2023d) and electricity supply contributed an estimated 48 metric tonnes of carbon dioxide equivalent ($MtCO_2e$) or 11% of UK emissions in 2022 (CCC, 2023b).

54. As explained at paragraph 1.29, NPS EN-1 states that electricity demand may be more than double by 2050 as the transport, heating and industry sectors make the change from fossil fuels to low carbon electricity to support their decarbonisation.

55. This is supported by page 45 in the Powering Up Britain – Energy Security Plan (DESNZ, 2023e) which states:

"As we transition to a more resilient and clean energy system, we anticipate that demand for electricity could double by 2050. Between now and then, the system will need to enable 50 gigawatts of offshore wind by 2030; and the decarbonisation of the power system, subject to security of supply, by 2035."

56. Through its Sixth Carbon Budget published in December 2020, the CCC advise that the UK reduce its emissions at least 78% by 2035 relative to 1990, a 63% reduction from 2019 (CCC, 2020b). According to the CCC's 'Balanced Pathway' approach to achieving Net Zero by 2050, deployment of low-cost renewables would need to account for 75% - 90% of electricity demand in 2050.

57. Therefore, there is a need to increase low carbon sources of electricity generation.

1.7 Need for affordable energy supply

58. Powering Up Britain- the Net Zero Growth Plan (DESNZ, 2023e) states that:

"…established technologies, such as offshore wind turbines, need to be constructed at pace to meet our ambitions for decarbonising power and delivering wholesale UK electricity prices that rank among the cheapest in Europe by 2035".

59. The document goes on to say that to reduce high household energy bills, the UK should move to cleaner and cheaper energy for protection against volatile international energy markets.

60. As offshore wind technology has matured, there has been a significant reduction in the cost of energy produced by offshore wind in recent years. The UK's Electricity Generation Costs (BEIS, 2023) estimates that by 2030 the

Levelised Cost of Energy (LCOE) produced from offshore wind would be reduced to £39/MWh, whereas the 2016 iteration of this document estimated the 2030 LCOE from offshore wind to be £103/MWh. This demonstrates the rapid decrease in the LCOE due to investment. According to BEIS (2020b), whilst the LCOE produced from offshore wind is decreasing, the opposite is true for electricity produced by combined cycle gas turbine technology.

61. Another supporting source of information is the fourth allocation round (BEIS, 2022) of the UK Government's CfD which concluded in July 2022. This was notable for the ongoing reduction in cost of offshore wind projects to as low as £37.35/MWh, compared with the first CfD round in 2015 which resulted in costs of up to £120/MWh. This demonstrates the progress being made with a reduction in costs by 69% in seven years. It should be noted however that in the fifth round of the CfD allocation there are no new offshore wind project contracts (DESNZ, 2023e).

62. Furthermore, the UK Government has reaffirmed its plans to move to a "*strong, home*-grown *renewable energy sector*" to protect it from fluctuating international energy markets and avoid the impacts of volatile gas prices threatening energy suppliers and energy-intensive industries (BEIS, 2021e; DESNZ, 2023e).

63. Therefore, increasing the development of offshore wind farms, such as North Falls, would decrease reliance on fossil fuels, decreasing the wholesale electricity price and household energy bills in the UK.

1.8 Additional benefits of renewable energy

1.8.1 Opportunity to support social and economic growth through energy infrastructure investment

64. As recognised in various UK Government strategies including the Net Zero Strategy: Build Back Greener, significant economic benefits could be captured from decarbonising trends. Wind farms provide opportunities for social and economic growth. The Offshore Wind Sector Deal (DESNZ, 2019) estimated that through the deployment of 30GW of installed capacity by 2030, offshore wind could support 27,000 jobs in the UK, covering all aspects of a wind farm. Subsequently, the Energy White Paper (HM Government, 2020a) commits to increase this target to 40GW. Building up to 40GW of offshore wind by 2030 could account for over £50 billion of infrastructure spending in the next decade. The Government has since increased the offshore wind capacity targets to 50GW by 2030 (HM Government, 2022).

65. Currently over 31,000 people are employed in the UK in the offshore wind sector, with this figure set to rise to 97,000 by 2030 driven by £155 billion in private investment (CCC, 2023a). More recent figures from the Offshore Wind Industry Council (OWIC, 2023) report that there is an existing workforce of

32,000 and forecast offshore wind jobs to be 104,401 by 2030 to meet current targets.

66. Between 2021 and 2022, the UK low carbon and renewable energy economy turnover increased by 28%, from £54.2 billion to £69.4 billion. Employment increased by 8 % in the same period, from 252,300 FTE jobs to 272,400(ONS, 2024). Powering Up Britain (2023) states that between 1990 and 2021, the UK has cut emissions by 48%, while growing the economy by 65%. This demonstrates the economic benefits of decarbonisation, including the growth of offshore wind infrastructure.

1.9 Benefits of the Project

1.9.1 North Falls' contribution to meeting the Government's targets

67. North Falls Offshore Wind Farm Limited is a joint venture between SSE Renewables Offshore Windfarm Holdings and RWE Renewables UK Swindon Limited (RWE), both of which are highly experienced developers. Both organisations are committed to developing renewable energy in the UK.

68. 14.7GW of energy is currently generated from offshore wind farms in the UK (Renewable UK, 2023). Additionally, as shown in Table 1.2, approximately 17.7GW of offshore wind capacity has been consented, with 3.7GW in construction. Once all consented projects and projects under construction are operational, this totals a capacity of 36.1GW. However, it should be recognised that not all consented projects come forward.

Table 2.2: Status of UK Offshore Wind Farms

Project Status	No. of Projects	Estimated capacity (GW)
Pre-application		
Consented	19	17.7
In construction	4	3.7
Operational	44	14.7
Total		36.1

69. As set out in the Need Case and Project Benefit Statement (Document Reference: 2.1), only 14GW of proposed offshore wind farms have a grid connection offer on or before 2030, including North Falls. This shows there is a deficit of 17.6GW to meet the 50GW target by 2030 and highlights the need to deliver North Falls. If the offshore wind farms proposed for connection before 2030 and meeting the 50GW target by 2030 were delayed, this would increase the climate change risk associated with energy security and potentially increase social inequality associated with increasing energy costs.

70. In light of this challenge, the 2017 Extension projects (see ES Chapter 1 Introduction (Document Reference: 3.1.3)) were identified by The Crown

Estate to provide an intermediate process between Rounds 3 and 4 to help contribute to the 2030 targets, recognising that extensions to existing offshore wind farms are a proven way of efficiently developing more offshore generating capacity (TCE, 2017).

71. Furthermore, a white paper by Imperial College London (2021), states that the capacity of offshore wind required to achieve the 2035 target to decarbonise the electricity system in the UK will require 108GW of offshore wind farms, compared to the existing target of 50GW by 2035. This is not only a sevenfold increase on the current installed capacity of 14.7GW but is also more than double the UK government's target for 2030. The above highlights the deficit of offshore wind capacity and the subsequent need to deliver North Falls.

72. The Project would make a measurable contribution to domestic renewable electricity generation, and the UK's national renewable energy targets.

73. The contribution of the Project would support the UK's stated aims to increase energy security through replacing electricity output from decommissioned (or yet to be decommissioned) older generating stations with low carbon electricity and reduce the reliance on imports of gas and electricity for use in the UK.

1.9.2 Socio-economics

74. An assessment of potential socio-economic impacts of the Project has been undertaken and is presented within ES Chapter 31 Socio-economics (Document Reference: 3.1.33).

75. It is estimated that North Fall's annual Gross Value Added (GVA) contribution to the UK economy would be around £4.9 to £70 million[1] during construction, of which between £0.7 to £7.2 million would be anticipated to be captured locally (in Essex and Suffolk). During the operational phase, North Fall's contribution to GVA would be around £18.3 to £20 million during operation, of which between £8.9 to £9.3m would be anticipated to be captured locally.

76. Employment numbers are estimated to be between 50 and 730 Full Time Employment (FTE) jobs per year of the construction phase (including onshore and offshore infrastructure), of which 7 to 80 jobs are anticipated to be local.

77. Once operational, there would be employment opportunities associated with the ongoing operation and maintenance (O&M) of both the onshore and offshore infrastructure. It is estimated that between 110 and 200 FTE jobs would be generated, of which at least 90 would be local. Additionally, there would be local employment opportunities associated with the decommissioning activity.

[1]The figures presented in this section are a summary of the outcomes of the socio-economic chapter of the ES, which in order to provide a precautionary but robust impact assessment presents three outcome scenarios – a worst case, a baseline case and an enhanced case scenario. The range of figures given in this section relate to the worst case and enhanced case scenarios.

78. As outlined in ES Chapter 31 Socio-economic (Document Reference: 3.1.33), there may be opportunities for businesses across several sectors to benefit from the construction and operational and maintenance activities related to North Falls. In the context of offshore wind farm developments, the greatest supply chain opportunities are likely to be in construction and civil engineering, manufacturing, transport, energy generation and professional, scientific and technical services. The Chapter finds that employment in construction, land-based transport and civil engineering is more concentrated in Essex than the national average. In Suffolk, all sectors have a Location Quotient (LQ) above 1, indicating the local economy has supply chain strengths in several key sectors which could potentially benefit from the development.

1.10 Summary

79. The need for North Falls is well established within the existing national policy framework through the relevant National Policy Statements and within extensive policy documents and other literature. The Project will help to deliver on the UK Government's climate change targets, on reducing emissions and increasing the proportion of renewables within the energy mix and generating more electricity from low-carbon sources.

80. Beyond contributing to the national and international targets on climate change, significant investment in the UK would be needed at every stage of the Project with tangible benefits for employment and supply chains.

81. The extant NPS EN-1 and EN-3 reiterate increased support for the growth in offshore wind generation, recognising low carbon infrastructure as a critical national priority with the generation of utility-scale quantities of electricity from renewable energy sources having a direct and measurable effect on climate change and in meeting the UK's climate change and emissions reduction targets.

82. Key national targets are summarised as follows:

- Meeting the Sixth Carbon Budget (and subsequent Carbon Budgets) and the overall 2050 net zero target, set out in the Climate Change Act 2008;
- Full decarbonisation of the power sector by 2035, set by the UK's Net Zero Strategy and reiterated in Powering up Britain; and
- 50GW of offshore wind by 2030, as stated in the BESS.

83. North Falls will provide a measurable contribution to Government targets in relation to offshore wind and wider decarbonisation, while contributing to energy security and affordability, and providing socio-economic benefits.

84. The Project directly aligns with the key drivers in National Policy and supports the offshore wind targets in the UK, clearly establishing the need for the Project.

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NORTH FALLS

Offshore Wind Farm

HARNESSING THE POWER OF NORTH SEA WIND

North Falls Offshore Wind Farm Limited

A joint venture company owned equally by SSE Renewables and RWE.

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