



ABLE MARINE ENERGY PARK (ARTICLE 7 EXTENSION OF TIME)

Habitats Regulations Assessment – Alternative Solutions and IROPI

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SLR Project No.: 416.065702.00001

PINS Reference No: S.I. 2014/2935 / TR030001

10 September 2024

Revision: FINAL

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
V1	31 August 2024	EB / DS		
V2	2 September 2024	EB / DS		
V3	4 September 2024	EB / DS		
V4	6 September 2024	EB / DS	AW	
V5	9 September 2024	EB / DS	AW	
V6	10 September 2024	EB / DS	AW	RC
FINAL	10 September 2024	EB / DS	AW	RC

Basis of Report

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1.0 Introduction

Background

- 1.1 This report has been produced by SLR Consulting Ltd as part of an application by Able Humber Ports Limited (APHL) for consent from the Secretary of State to extend a time limit in the Able Marine Energy Park (AMEP) Development Consent Order 2014 (S.I. 2014/2935) under article 7 of the Order.
- 1.2 Article 6(4) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ('the directive') provides a derogation under article 6(4) which allows projects that may have an "*adverse effect on the integrity of a European site*" to be approved provided three tests are met:
 - there are no feasible alternative solutions to the plan or project which are less damaging;
 - there are "imperative reasons of overriding public interest" (IROPI) for the plan or project to proceed; and
 - compensatory measures are secured to ensure that the overall coherence of the network of European sites is maintained.
- 1.3 The directive is primarily transposed into domestic legislation through the Conservation of Habitats and Species Regulations 2017. In accordance with Regulation 64, if the competent authority is satisfied that, there being no feasible alternative solutions, the project must be carried out for imperative reasons of overriding public interest (which may be of a social or economic nature), it may agree to the project notwithstanding a negative assessment of the implications for the European site.
- 1.4 It should be noted that the 2017 Regulations were subsequently updated through the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Within the 2019 amendments to the Regulations, the Natura 2000 Network was renamed as the 'National Site Network'; this revised naming has been utilised throughout this document.

Development Consent Order

- 1.5 The DCO for the Able Marine Energy Park (AMEP) was made on 13th January 2014, laid before Parliament on 10th February 2014 and subsequently came into force on 29th October 2014 (Statutory Instrument 2014 No. 2935). It was amended by a non-material change on 13 May 2021 and a material change on 16 July 2022 (see further below). A copy of the DCO is provided within Technical Appendix ER1-1 of the Environmental Review.
- 1.6 The DCO permits, *inter alia*, the development of a new quay and associated development at Killingholme in North Lincolnshire, on the south bank of the Humber Estuary. Briefly, the development on the south bank comprises a quay, reclaimed estuarine habitat and the provision of onshore facilities for the manufacture, assembly and storage of components relating to the offshore renewable energy sector. The DCO further permits other associated development including environmental habitat, namely the Cherry Cobb Sands compensation site, on the north bank of the Humber in the East Riding of Yorkshire authoritative area.



- 1.7 The authorised development is described in Schedule 1 of the DCO 'Authorised Development', whilst Part 2, Article 7 of the DCO limits the time period during which works can be carried out.
- 1.8 The DCO submission was accompanied by an Environmental Statement (ES). During the examination of the proposals, additional environmental information was submitted by the Applicant and was incorporated into the original ES for the Project. The documents forming the project ES are listed at Schedule 11, paragraph 1 of the AMEP DCO, and this complete set of documents is referred to as 'the original ES'.

Purpose of Report

- 1.9 In view of the passage of time between the corresponding information prepared for the original DCO application and the application for an extended time limit, this report provides updated information on feasible alternative solutions (Section 2.0) and the Imperative Reasons of Overriding Public Interest (IROPI) (Section 3.0) which originally supported the Habitats Regulations Assessment (HRA).



2.0 Alternative Solutions

Introduction

- 2.1 This part of the updated report demonstrates the continued absence of any feasible alternative solutions to meet the needs that define the project objectives.

Changes in Legislation, Guidance and Policy

- 2.2 Guidance on the application of the three tests under article 6(4) in England and UK offshore waters is provided in “*Habitats Regulation Assessments: protecting a European Site*” (DEFRA, updated December 2023). The purpose of the alternative solutions test is to confirm that there are no other feasible ways to deliver the overall objectives of the project which will be less damaging to the integrity of the European site affected (in this case The Humber Special Area of Conservation (SAC) and Special Protection Area (SPA)/Ramsar Site).
- 2.3 In respect of considering whether a derogation should be allowed, the DEFRA guidance confirms that the proposer (Applicant) should provide the competent authority (in this case the Secretary of State for Transport) with information about alternatives. The competent authority should use its judgement to determine what is reasonable in respect of alternative solutions, which might include different location; scale; size; methods; or timing, alongside the ‘do nothing’ option (also referred to as ‘zero-option’).
- 2.4 With respect to assessing whether alternatives meet the objectives of the project, the DEFRA guidance confirms that an alternative solution would be acceptable if it:
- *“achieves the same overall objective as the original proposal;*
 - *is financially, legally and technically feasible; and*
 - *is less damaging to the European site and does not have an adverse effect on the integrity of this or any other European site.”*
- 2.5 Taking into account the above, the purpose of this section of the report is to present to the competent authority the categories of feasible alternative solution considered for the AMEP project and thereby demonstrate that there is no feasible alternative solution that satisfies the project objectives.

Updated Objectives of the Project

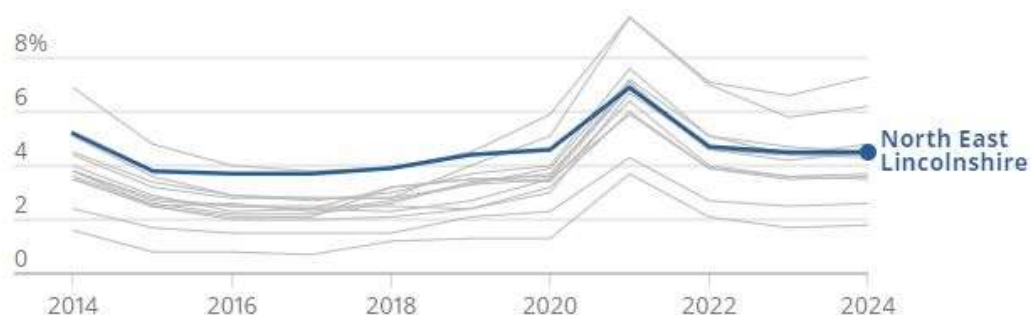
- 2.6 The Project will address three key objectives of UK Energy Policy, viz.
- decarbonise the means of electricity production in a sector that has a key role on the UK trajectory to Net Zero by 2050;
 - provide secure energy supplies for the UK; and
 - improve UK competitiveness by creating jobs and growth in a sector in where the UK has the highest deployment in Europe.
- 2.7 In particular the Project will:



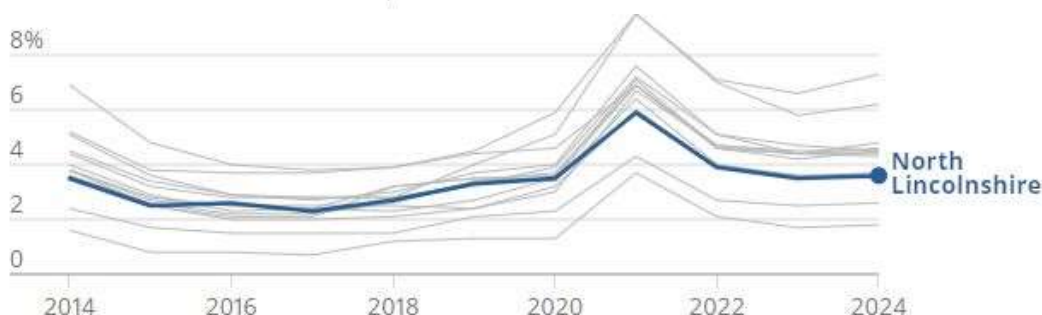
- provide facilities for the manufacture of large-scale offshore energy components;
 - contribute to ‘rebalancing’ the UK economy by enabling the development of a significant manufacturing cluster - such a cluster will have a beneficial impact on the competitiveness of the UK offshore wind industry; and
 - provide a significant contribution to the regeneration of the Humber Estuary sub-region, an economically deprived area of the UK.
- 2.8 The need for new manufacturing facilities and for construction ports in the UK to enable growth of the offshore wind energy sector arises from a number of international, national and regional imperatives, viz.
- 2.9 World production of energy needs to be decarbonised in order to avoid the potential adverse impacts of climate change. The UK Climate Change Strategy (2021-2024) reflects that “*climate change is a global challenge, requiring global solutions - profound, comprehensive and urgent international cooperation is required to deliver a net zero global economy*”. Accordingly, International Treaties and national legislation compel the UK Government to make an urgent transition to a low carbon economy.
- 2.10 The UK must ensure security of its energy supplies whilst managing its own transition from fossil fuels to renewable forms of energy over the next few decades. This need has been emphasised since the invasion of Ukraine in February 2022. The HM Government Energy Security Plan (March 2023) states that “*energy security necessarily entails the smooth transition to abundant, low-carbon energy. If we do not decarbonise, we will be less energy secure*”. In this context, a secure energy supply is characterised by: a diverse energy mix of different sources and fuels; limited reliance on imported supplies; reliable and well managed infrastructure and stable prices. Offshore renewable energy is part of such a diverse mix of energy generation. The transition is to be market-led.
- 2.11 The UK must develop large capacity offshore wind turbines to make the delivery of sufficient offshore wind turbine capacity feasible and to reduce the environmental impacts associated with manufacturing, deployment and maintenance. Minimising the environmental impacts of road transportation, such turbines will need to be manufactured at portside locations.
- 2.12 The UK needs to increase its manufacturing base and, where practicable to do so, target investment in areas of relative deprivation to reduce social imbalance between regions. The transition from a fossil fuel economy to a low carbon one offers substantial new employment opportunities in the manufacturing sector and the potential for significant socio-economic benefit to the UK.
- 2.13 The Humber sub-region is an area of relative deprivation and is in need of substantial investment. North East Lincolnshire is currently suffering higher levels of unemployment than North Lincolnshire and Yorkshire and the Humber. Trends in claimant counts for both authority areas from 2014 to 2024 compared to the other authorities within Yorkshire and Humber are illustrated in Figure 2-1 below.



Figure 2-1: Claimant Count trends for North East Lincolnshire and North Lincolnshire 2014 - 2024¹



Source: Claimant Count from Department for Work and Pensions



Source: Claimant Count from Department for Work and Pensions

The Need to Decarbonise Energy Production

- 2.14 The earth’s climate has been changing constantly over millions of years. Indeed, it is only ten thousand years since the majority of the UK land mass was covered by a series of thick ice sheets. In the current era we can understand the climate and the factors that influence it.
- 2.15 The climate is mainly influenced by the amount of energy coming from the sun, but also by factors such as the amount of greenhouse gases and aerosol propellant in the atmosphere. Recent human activity is changing the composition of the atmosphere and its properties. Since pre-industrial times (around 1750), carbon dioxide concentrations have increased by just over a third from 280 parts per million (ppm) to 420 ppm today, predominantly as a result of burning fossil fuels, deforestation and changes in land use. The concentration of other greenhouse gases such as methane and nitrous oxide are also rising.
- 2.16 There is compelling scientific evidence that the rising levels of greenhouse gases will have a warming effect on the earth’s climate through increasing the amount of infrared radiation (heat energy) trapped in the atmosphere, “the greenhouse effect”. In total the warming effect due to all greenhouse gases² emitted by human activities was equivalent to around

¹ <https://www.ons.gov.uk/visualisations/labourmarketlocal/E06000012/> & <https://www.ons.gov.uk/visualisations/labourmarketlocal/E06000013/>

² Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF₆), as defined in the Kyoto Protocol



472 ppm of carbon dioxide in 2021. This concentration represented an increase of about 50 ppm over the preceding 10 years and was about 192 ppm more than in pre-industrial times³.

- 2.17 The impact of climate change is to potentially threaten the basic elements of life for people around the world – access to water, food, health and use of land and the environment generally. One of the ways in which this would occur would be through rises in sea levels, inundating coastal areas around the world. Accordingly, the UK Government is a signatory to international commitments on climate change and national legislation has been developed that provides a statutory framework for the reduction of greenhouse gas emissions over the next few decades.
- 2.18 The Kyoto Protocol was developed to limit the growth of greenhouse gas emissions. Under the protocol, industrialised countries and those in transition to a market/industrialised economy agreed to limit or reduce their emissions of greenhouses gases. It came into force on 16 February 2005 and commits signatories, including the United Kingdom, to reduce or limit their greenhouse gas emissions to a specified target value relative to their 1990 emissions in the period 2008-2012.
- 2.19 The UK government has achieved its target reduction for emissions. Since the Kyoto Protocol, however, it has become evident that more significant action is required to limit climate change. Accordingly, legislation has been introduced by the UK Government, to impose legal obligations that compel a transformation to a lower carbon economy.
- 2.20 The Climate Change Act 2008 is the basis for the UK's approach to tackling and responding to climate change. It requires that emissions of carbon dioxide and other greenhouse gases are reduced and that climate change risks are adapted to. The Act also establishes the framework to deliver on these requirements. The Act supports the UK's commitment to urgent international action to tackle climate change. Through the Act, the UK Government has set a target to significantly reduce UK greenhouse gas emissions by 2050 and a path to get there.
- 2.21 The Act also established the Committee on Climate Change (CCC) to ensure that emissions targets are evidence-based and independently assessed. The Act commits the UK Government by law to reducing greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050. The 100% target was based on advice from the CCC's 2019 report, '*Net Zero – The UK's contribution to stopping global warming.*'

The Need for Security of the UK Energy Supply

- 2.22 Whilst the development of renewable energy has been mainly driven by concerns over climate change, an additional important issue is the role of renewables in contributing to security of UK energy supplies. This is being driven by global shortages of oil supplies and increased oil demand from the developing economies (particularly China), depletion of national offshore gas reserves (particularly in the UK) and actions by the world's largest gas supplier – Russia.
- 2.23 In accordance with Section 172 of the Energy Act 2004 (as amended by Section 80 of the Energy Act 2011), the government and Ofgem is required, in every calendar year, to:

³ <https://www.eea.europa.eu/en/analysis/indicators/atmospheric-greenhouse-gas-concentrations>



“publish a report dealing, as regards both the short term and the long term, with the availability of electricity and gas for meeting the reasonable demands of consumers in Great Britain”.

- 2.24 The most recent of such reports, ‘*Statutory Security of Supply Report*’, (DECC, 2023), records that at the end of 2023, the UK had sufficient electricity capacity to meet the forecast winter’s demand, with a margin of 4.4GW (about 7.4%) between supply and demand. This represented an increase on the 3.7GW (6.3%) that was expected at the end of 2022.
- 2.25 The Overarching National Policy Statement for Energy, EN-1 (November 2023), states that to ensure that there is sufficient electricity to meet demand, new electricity infrastructure will have to be built to replace output from retiring plants and to ensure we can meet increased demand. Even with major improvements in overall energy efficiency, and increased flexibility in the energy system, 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, with an illustrative range of 465-515TWh in 2035 and 610-800TWh in 2050.

The Need for Large Capacity Offshore Turbines

- 2.26 The importance of offshore wind and need for large capacity offshore turbines is reiterated in the UK Government *Offshore Wind Net Zero Investment Roadmap* (March 2023), noting that offshore wind is an established and proven part of the UK energy mix and is set to become even more important in the future. The Roadmap highlights the need for *“Large-scale, deepwater ports for the fabrication, assembly, storage and deployment of floating offshore wind turbines.”*
- 2.27 This need is also reflected in the Overarching National Policy Statement for Energy, EN-1 which states that as part of delivering a secure, reliable, affordable, net zero consistent system in 2050, the UK government announced in the British Energy Security Strategy⁴ an ambition to deliver up to 50 gigawatts (GW) of offshore wind by 2030, including up to 5GW of floating wind.

The Need to Rebalance the UK Economy

- 2.28 The concept of a “rebalanced” economy has become central to the debate on how the UK can generate sustainable growth. One major imbalance is considered to be the level of manufacturing in the UK compared to other industrialised countries. In the UK, manufacturing and associated employment has declined rapidly in recent decades, with the proportion of manufacturing workforce jobs in Yorkshire and the Humber reducing from 17.9% in 1996 to 10% in 2024; this compares to a corresponding UK fall from 15.2% to 7%⁵. Recent trends in UK manufacturing output are shown below⁶.

⁴ <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

⁵ https://www.nomisweb.co.uk/reports/lmp/gor/2013265923/subreports/gor_wfjsa_time_series/report.aspx?

⁶ <https://commonslibrary.parliament.uk/research-briefings/sn05206/>



Figure 2-2: Trends in UK manufacturing output



- 2.29 The State of the European Wind Energy Supply Chain (Rystad Energy, 2023) suggests that “noteworthy European countries in the current wind supply chain include Germany, Spain and Denmark, all of which have significant activity linked to producing the main components of wind turbines – blades, nacelles, and towers. In recent years, France has also emerged as one of the key countries, with new blade and nacelle manufacturing plants. For offshore wind foundations, key producers include the Netherlands, Germany, and Denmark. Unsurprisingly, these countries are also among the leaders in terms of installed capacity for offshore wind in Europe. Most of these facilities are in port cities, facilitating sea transport.”
- 2.30 A result is that 80 percent to 90 percent of the historic capital value in UK offshore wind farm projects has been based on imported goods and services and the economic benefits to the UK have been very limited (Garrad Hassan, 2010).
- 2.31 The aforementioned aspirations for increase in the contribution of the UK offshore wind sector to achieving Net Zero requires urgent and significant investment in new manufacturing facilities and port infrastructure in the UK. This investment must be market led, and for the UK to benefit significantly from private sector investment in new manufacturing facilities, it must provide suitable development sites, including deep water port installations.

The Need to Regenerate The Humber Sub-Region

- 2.32 The English Indices of Deprivation 2019 (MHCLG⁷) provide local authority district summaries. For the Index of Multiple Deprivation, which represents a combination of different individual deprivation indices, North Lincolnshire was ranked 79th, whilst North East Lincolnshire was ranked 51st out of 151 authorities (where 1 is the most deprived and 151 the least deprived). For the corresponding employment index, North East Lincolnshire was ranked 35th and North Lincolnshire 54th.

⁷ <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>



- 2.33 Accordingly, there is a manifest need to address deprivation in the Humber sub-region by promoting investment in that area. The development of AMEP will have a significant positive impact on these criteria at the local level but will also benefit the Humber sub-region as a whole.
- 2.34 Much of the AMEP site now forms part Humber Freeport which, with effect from 19th November 2021, has been designated and recognised in law as one of a number of geographical areas where businesses can benefit from tax reliefs to bring investment, trade and jobs to regenerate regions across the country that need it most.
- 2.35 Based on 2011 values (noting they have not been updated to 2024 values), the following economic effects are estimated:
- The employment impact at the site will be 4,100 FTE jobs. The net additional local impact is 3,740 FTE jobs taking into account deadweight, leakage, displacement, and indirect and induced multiplier effects.
 - The UK-wide cumulative net additional impact is 10,600 FTE jobs. These jobs will generate significant net additional GVA in the local economy – estimated at £210 million, and in the national economy – estimated at £602.5 million.
- 2.36 As indicated above, these estimates are considered conservative and the GVA impact will potentially be higher due to higher GVA per job in the offshore wind energy sector.
- 2.37 The AMEP labour market impact is potentially significant, especially in the immediate vicinity of the development. It is expected that the workforce will have to come from a wider area, both North and North East Lincolnshire and from within the wider region of Yorkshire and the Humber. Based on the impact assessment of AMEP, it is evident that economic impacts can be expected to be highly positive:
- diversification of the manufacturing sector into new offshore wind technologies providing higher job security compared to traditional industries in decline;
 - new jobs (4,100 direct jobs excluding installation related jobs) created directly at the site absorbing some of the potentially available pool of workers (unemployed and potentially economically active). These new jobs will attract highly skilled workers from other areas as well, thereby creating a critical mass of offshore wind professionals in the local area;
 - AMEP will enable the development of an offshore wind manufacturing cluster in the Humber region as it will be cheaper and more efficient to co-locate businesses in the supply chain. A manufacturing cluster will help to develop offshore wind (and other marine renewables) technologies further;
 - new offshore wind jobs will require highly qualified workers and AMEP represents opportunity to raise the skill level of local labour to ensure increased local participation;
 - the supply chain for AMEP offshore wind manufacturers will be developing in the Yorkshire and the Humber region and beyond with signs of this process appearing recently with foundation manufacturers setting up facilities in Scunthorpe and Teesside;
 - AMEP will also support 200 FTE jobs at a number of suppliers of goods, services, and works locally (i.e. within NL and NEL) and further 920 FTE jobs through spending of its and suppliers' employees in the local economy; and



- Wider impacts will include attraction of inward investment, growth of R&D in offshore wind in Yorkshire and the Humber, upskilling of the workforce, and others.

Project Description

- 2.38 The development of a Marine Energy Park is directly related to the global environmental project to decarbonise world energy production. The need to decarbonise world energy production, and its overriding benefit to the global environment, is beyond any reasonable scientific doubt. The project is described in *Chapter 4* of the original Environmental Statement, Volume 1 and this application has not amended this description.

Works having an Adverse Effect on Integrity

Works outside the National Site Network

- 2.39 Works outside the National Site Network comprise the manufacturing areas and the impacts of that development of National Site Network features are mitigated within the development site and at Halton Marshes Wet Grassland which has already been constructed.

Works within the National Site Network

- 2.40 Works within the National Site Network comprise a new solid quay structure and the environmental impact of those works cannot be mitigated. It is therefore necessary to consider whether any alternative solutions to those works exist that would avoid an adverse effect on integrity of the National Site Network.

Methodology for the Assessment of Alternatives

- 2.41 The assessment of alternative solutions is undertaken in four stages.

Stage 1 - Zero Option

- 2.42 An assessment of the feasibility of constructing the development without the quay, or not constructing the development at all.

Stage 2 – Is There an Alternative Site that would result in less damage to the National Site Network?

Stage 2A

- 2.43 Subject to the development being needed and needing a quay, an assessment of whether the development could be constructed on an alternative site that is not part of the National Site Network.

Stage 2B

- 2.44 Subject to there being no alternative site outside the National Site Network, an assessment of whether the development could be constructed on another National Site Network site and have less overall environmental impact.



Stage 2C

- 2.45 Subject to there being no alternative site for the whole development anywhere, an assessment of whether the development could feasibly be constructed as a series of smaller developments and have less overall environmental impact.

Stage 3 – Is There an Alternative Design that would be less damaging to the National Site Network?

Stage 3A

- 2.46 Subject to there being no feasible alternative site or sites for the development, an assessment of whether the environmental impact could be reduced by adopting a different scale of development.

Stage 3B

- 2.47 Subject to there being no feasible alternative site or sites for the development, an assessment of whether the environmental impact could be reduced by adopting a different design for the quay.

Stage 4 – Can the Facility be Operated in any way that would reduce the negative impact on the National Site Network Site?

- 2.48 Subject to there being no feasible alternative design or scale of development, an assessment of alternative means of operating the facility to reduce its environmental impact.

The Assessment of Alternatives

Updated Stage 1 - The Zero-Option

Definition

- 2.49 The zero option can comprise either:
- constructing manufacturing facilities for offshore wind turbines without a quay, or
 - not building offshore wind manufacturing facilities at all.

Offshore Turbine Manufacturing Facilities without a Quay

- 2.50 If the development excluded the quay, then all of the products manufactured on the site would need to be transportable by road or rail to a nearby port. This would mean that products could be no larger than those manufactured for onshore installation.
- 2.51 The Crown Estate *Offshore Wind Report 2022* reflected that “*the average turbine size for projects commissioned in 2022 was 9MW, an increase of almost five times the size of the first commercial offshore turbines installed twenty years ago*”. Indicative increases in the scale of offshore turbine components are summarised in **Table 2-1** below⁸:

⁸ Data from: <https://www.ft.com/content/565c21bf-25a0-4fc6-9f47-c7483671d43a>



Table 2-1: Increases in the Scale of Offshore Wind Turbine Components

Year	Typical rotor diameter (m)	Typical hub height (m)	Typical installed output (MW)
1991	35	35	0.5
2001	76	64	2.0
2010	93	68	2.3
2015	154	102	6.0
2017	164	113	8.0
2024	252	146	16.0

- 2.52 By virtue of the length of blades and tower sections, modern offshore turbines are not transportable by road or rail. Consequently, all new manufacturing facilities for offshore wind turbines must have direct access to a quay and existing onshore facilities cannot be used that rely on road or rail transport.
- 2.53 In summary, manufacturing facilities for next generation offshore wind turbines need a quay and the development cannot proceed without it.

No Offshore Wind Turbine Manufacturing Facilities

- 2.54 In April 2024 RenewableUK, the Offshore Wind Industry Council, The Crown Estate and Crown Estate Scotland published a detailed Industrial Growth Plan (IGP), setting out how to triple offshore wind manufacturing capacity over the next ten years, firmly establishing the UK as a leader in a surging global market.
- 2.55 The IGP reports that the UK has the second largest global pipeline of offshore wind projects at all stages of development at nearly 100GW - more than six times our current capacity; it emphasises however that supply chain constraints in many of the key components needed in offshore wind farms are already starting to be felt in the global market. The IGP identifies strategic new factories and manufacturing capabilities which the UK should build up to protect against supply chain risks and boost economic growth.
- 2.56 The manufacture of offshore wind blades and turbine towers is one of five key technology areas that the IGP identifies for the UK to prioritise investment to secure value for UK industry.
- 2.57 To fulfil the objectives for generation of energy from offshore wind by 2030 set out within the Overarching National Policy Statement for Energy, it is evident that many new offshore wind turbine manufacturing facilities are required.
- 2.58 In summary, manufacturing facilities for next generation offshore wind turbines need to be built.

Summary – Zero Option

- 2.59 The development of large turbines specifically for the offshore wind sector is firmly rooted in UK policy and there is a defined need to increase manufacturing capacity for offshore wind turbine components to support the national policy objectives for Net Zero.
- 2.60 Next generation offshore wind turbine manufacturing facilities must have direct access to a quay as they are too heavy to transport by road or rail. A quay is therefore an essential requirement for new offshore turbine manufacturing facilities.
- 2.61 The zero option is therefore discounted.



Updated Stage 2: Alternative Sites

Possible Alternative Sites

The Geographical Limits - The Continent

- 2.62 Alternative sites outside of the UK are not considered because such sites would not meet the long term economic and social needs of the UK or stated Government policy. This is emphasised in the Government support for offshore wind set out in the *Offshore Wind Net Zero Roadmap*, which focuses on the employment, skills and economic benefits that the industry can bring at a domestic level.
- 2.63 Furthermore, alternative sites outside of the UK would not deliver the project objectives outlined above of contributing to the security of UK energy supplies, and the growth and rebalancing of the UK economy through regeneration and the development of manufacturing industry.

The Geographical Limits - The UK

- 2.64 To be commercially viable as a manufacturing cluster with an on-site construction port, the alternative sites are realistically limited to the south and east coast of Britain where the Round 3, 4 and 6 zones are concentrated and where there is ready access to other nations' economic zones.

Site Specification

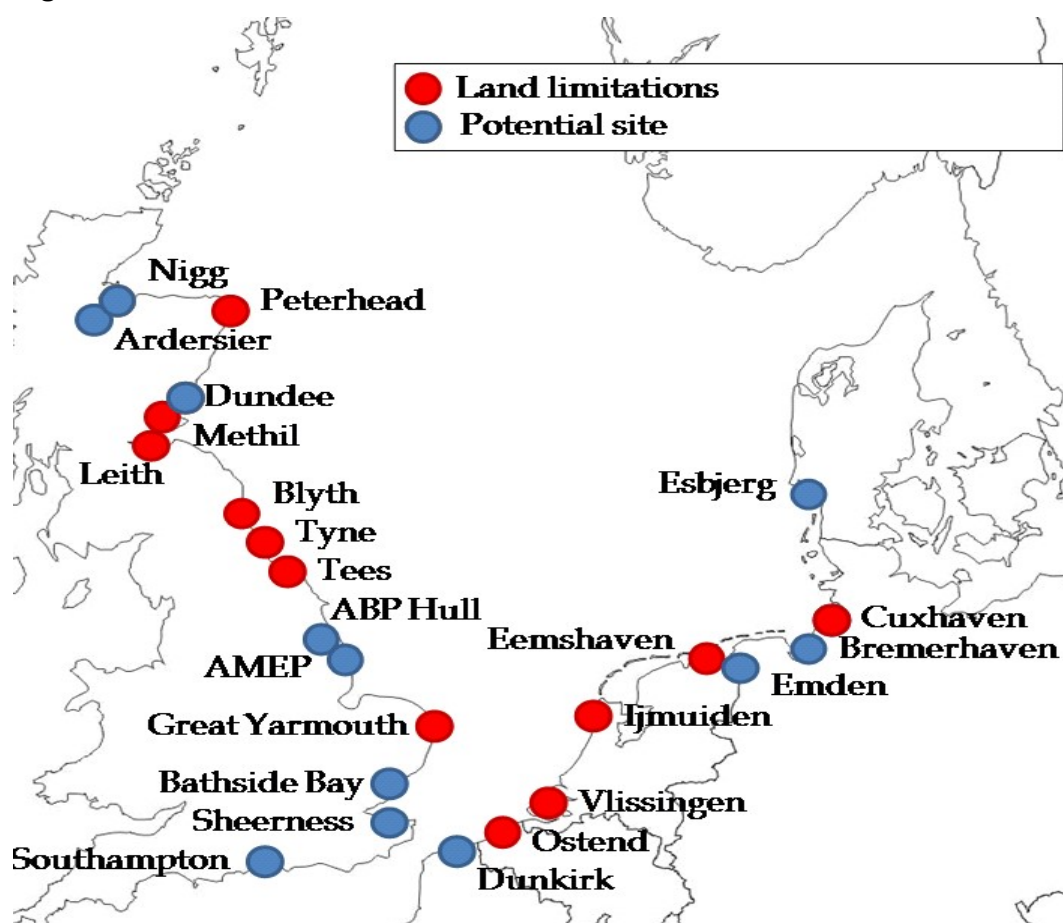
- 2.65 The specific site requirements are set out in Chapter 6 of the original ES and are summarised below:
- proximity to the major Round 6 development zones, which include Hornsea Project 4 and East Anglia Two, Phase 1 (noted that this referred to Round 3 in the ES);
 - a substantial single parcel of flat land with access to deep water;
 - good road and rail access;
 - appropriate land use allocation.

Port Sites on the South and East Coast of Britain

- 2.66 The previous iteration of the alternative sites assessment referenced *UK Offshore Wind Ports Prospectus* (DECC, 2009), which provided details of 26 potential ports, 15 of them on the southern and eastern shoreline of the UK, that could be developed to serve the offshore wind industry in some capacity. These ports are Nigg, Peterhead, Dundee, Methil, Leith, Blyth, Tyneside, Able Middlesbrough, Hartlepool, Able Seaton, ABP Hull, Able Humber, Great Yarmouth, Isle of Grain, Sheerness and Southampton. Their locations are illustrated in **Figure 2-3**.



Figure 2-3: Potential Alternative Port Locations⁹



2.67 Of the ports identified, eight have clear size limitations in terms of their development as a manufacturing and construction port cluster; these are summarised in **Table 2.2** below and have been screened out of any further assessment.

Table 2-2: Port Locations with Insufficient Land

Port	Restriction	Details
Peterhead	Land/Quay	The port has developed a 1.6 ha site for renewables with a further 3.2 ha offsite. A new 170 m berth has been developed to support offshore renewables operations.
Methil	Land/Quay	The port's Energy Park is 54 ha of which 7.5 ha are currently available. The site has two quays with a total length of 345 m.
Leith	Land	The port owner has commenced construction of a bespoke riverside berth as part of its development of a 175 ha renewable energy hub on adjacent land
Blyth	Land/Quay	100 ha of land are available with more than 1.5 km of quay but this is divided into parcels with areas already utilised by existing customers including the Energy Central Learning Hub, test facilities of the Offshore Renewable Energy Catapult, the Northumberland Energy Park and EDF's Blyth Offshore Demonstrator Wind Farm.

⁹ Source: BVG Associates



Port	Restriction	Details
Tyne	Land	The Renewable Energy Park is located on the north bank of river and has 60 ha of available land with 800 m of quayside. This is split into a number of discontinuous sites. The Tyne Renewables Quay is being marketed as available, with 11.7 hectares and adjacent deep water berth
Tees	Land	The Seaton and Middlesbrough sites on the north and south banks of the river and offer a total of 72 ha and 550 m and 350 m respectively. Outside the river mouth, Hartlepool offers 23 ha with 900 m of quayside. The sites provide support to the surrounding Tees Valley energy hub and could be developed for discrete manufacturing facilities but not a construction port/manufacturing cluster.
Great Yarmouth	Land	The port has 12 ha of development land with up to 1,000 m of quay as well as the opportunity to develop further land beyond the new outer harbour. The port was identified in 2023 by Vattenfall as the preferred location for the operations and maintenance base for the Norfolk Offshore Wind Zone.

2.68 The remaining alternatives– Nigg, Ardersier, Dundee, ABP Hull, Bathside Bay, Sheerness and Southampton - are considered in greater detail below. Information has been sourced from company documents and websites as well as publications by public and industry bodies.

Description of UK Port Sites with a Significant Land Parcel

Nigg

2.69 The Nigg Site is approximately 526 kilometres from Hornsea Project 4 and 729 kilometres from the East Anglia Two. A development masterplan for the Port of Nigg was developed in 2013 by The Highlands and Islands Enterprise and the Highlands Council. Layout of the port area from the development masterplan is provided as **Figure 2-4** below.

2.70 Subsequent development at the port has included:

- completion of improvements to the existing South Quay in 2015, which has been re-faced with a new steel piled wall and the area dredged to a depth of 12.7 metres below chart datum;
- the completion of the Easy Quay project in June 2022, providing 225 metre length, 50 metre width, and 12 metres water depth at the lowest astronomical tide, to service multiple large scale energy sector projects simultaneously.

2.71 The 70-ha fabrication yard has the benefit of an existing 306 m long dry dock and has been used for the manufacture of offshore wind turbines. A heavy-duty quay partly runs along one side and is capable of supporting a distributed load of 90 T/m².

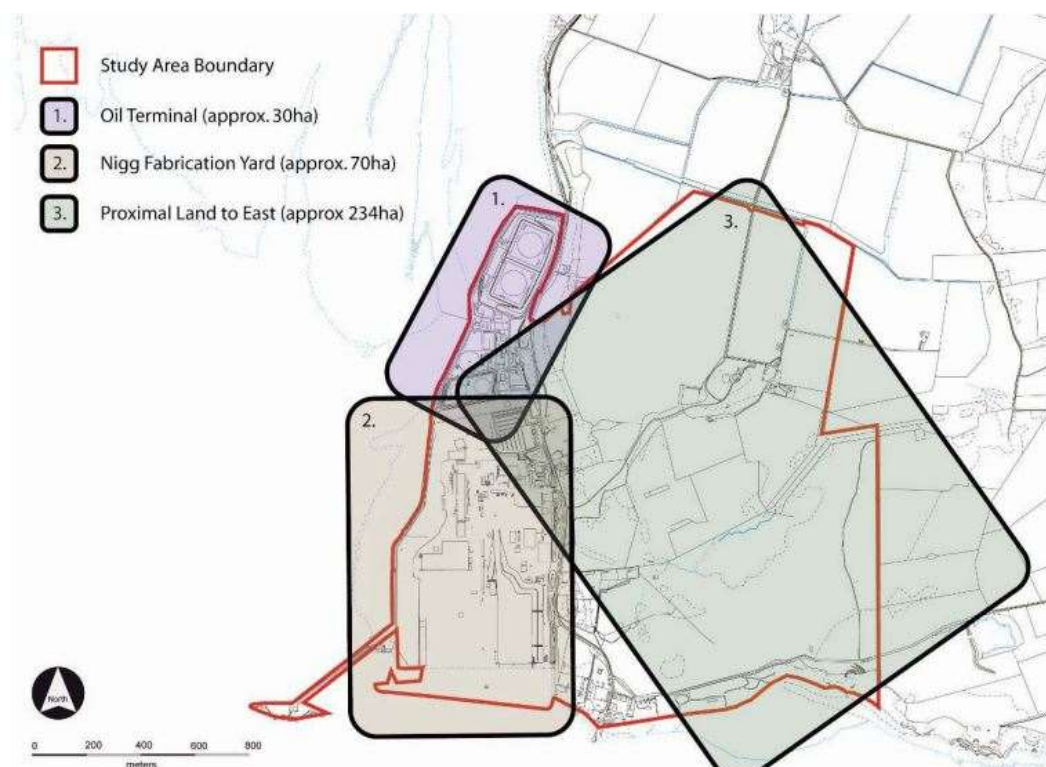
2.72 The proximal land to the east lies on steeply rising ground and only a small area near the coast is actually flat and suitable for offshore component manufacturing. The coastal boundary also lies within the Cromarty Firth SPA/SSSI/Ramsar site.

2.73 Its geographic remoteness from the majority of the Round 6 zones is a significant barrier to the use of this site as a manufacturing cluster or project port for the forthcoming development areas. Topographic constraints also mean that Nigg cannot be considered a feasible site for a MEP. It is nevertheless in a very favourable position to serve as a construction port for the Moray Firth zone and could clearly support a significant foundation



fabrication yard. Its dry dock also provides a real opportunity for the manufacture of gravity-based foundation structures.

Figure 2-4: Nigg Site Layout¹⁰



Ardersier

- 2.74 The Ardersier yard is located in north east Scotland on the south shore of the Moray Firth, approximately 12 kilometres south of Nigg. It lies adjacent to the Moray Firth SAC, Inner Moray Firth SPA and Ramsar sites and Whiteness Head SSSI. The site is approximately 522 kilometres from Hornsea Project 4 and 717 kilometres from East Anglia Two. An aerial view of Ardersier is shown at **Figure 2-5**.
- 2.75 Ardersier was originally reclaimed for the construction of oil and gas platforms in the early 1970s, but such activity ceased in the early 1990s. Previous development proposals for the site by the Whiteness Property Company, had outline planning permission for nearly 2,000 houses already and ambitions for up to 4,000 units. Investment had been made to remediate the land in preparation for housing.
- 2.76 It is understood that the site is now being developed by Haventus to support the large-scale deployment of offshore wind to provide a 180-ha site with berth dredged to 12.4 metres below chart datum; 659 metre quay wall and 420 metre main quay. Scheduled full operation is 2025.
- 2.77 The HE-HIS Strategic Environmental Assessment concluded that there was potential for development to have significant adverse environmental effects on the designated sites. In summary the assessment stated that:

¹⁰ Source: HE-HEIS, 2013



“It is likely that Habitats Regulations Appraisal will be required at the project level, covering at least the following issues:

- *effects of construction noise and vessel movement on bottlenose dolphins*
- *effects of construction on birds using habitat within the SPA*
- *effects of dredging on coastal erosion/deposition patterns and the potential for this to affect the SPA and SAC interests.”*

2.78 In common with the nearby Nigg site, Ardersier’s geographical remoteness is its key weakness as an alternative site.

Figure 2-5: Aerial view of Ardersier



Dundee

- 2.79 The port is approximately 388 kilometres from Hornsea Project 4 and approximately 587 kilometres from East Anglia Two. The port has 1,600 metres of quay with six working berths, but this is not continuous; it is already utilised by existing customers and is partially lock bound.
- 2.80 Whilst the port has invested £10 million to support opportunities for decommissioning and the offshore wind industry, including provision of 300 metres of new quayside with a minimum water depth of 9 metres at lowest astronomical tide, substantial development of the port for the offshore wind sector is envisaged to require reclamation and consequential habitat loss within the Firth of Tay and Eden Estuary SAC.
- 2.81 The landholding is considered too dispersed to provide a base for an integrated manufacturing and construction port facility.



ABP Hull

- 2.82 The port of Hull is owned by ABP and is 10 kilometres upriver from the AMEP development site. The port is approximately 95 kilometres from Hornsea Project 4 and approximately 279 kilometres from East Anglia Two. An aerial view of Hull is shown in **Figure 2-6**.

Figure 2-6: Aerial View of Hull



- 2.83 Consent was granted in 2006 for the development of a 12-ha riverside berth with 600 metres of quayside adjacent to Alexandra Dock on the western end of the port. The consent provided for the development of a container terminal and is likely to require a new authorisation to cover a different use.
- 2.84 Development of the site was subject to an Appropriate Assessment (Department for Transport, 2005) which agreed with English Nature (as so named at the time) that the development would have an adverse effect on the integrity of the Humber Estuary designated site because it would, 'result in the loss of about four hectares of inter-tidal mudflats used by waders and other water birds, while demolition of West Wharf Pier would result in a loss of roosting habitat'.
- 2.85 Consent was granted on the basis that no alternatives existed and that the development was required for imperative reasons of overriding public interest (IROPI). The decision letter noted that:
- '(t)he Secretary of State accepts the Applicant's case that the port forms part of the national infrastructure and is a valuable component in the national and regional logistics chain. The port plays a vital role in the national feeder container market and in the continental short sea shipping market. The potential of Hull and of the Humber Region to provide a major link between Ireland, the UK and continental Europe is recognised in Regional Planning Guidance note 12. The Secretary of State observes moreover that Hull and the Humber ports form one of the key areas in the three northern Regional Development Agencies' Northern Way initiative for the regeneration of the North of England.*
- 2.86 Despite the IROPI case being accepted, the consent has never been implemented and ABP has since marketed the facility to the offshore wind industry and has also proposed infilling half of Alexandra Dock to offer more development land. Further quayside would also be available within the King George Dock, although this would be beam restricted by locks. A 200 ha satellite site is available close to Hull Docks but is separated from it. If it were to be developed as a manufacturing site additional quays would need to be developed. The land has a narrow frontage onto the estuary.
- 2.87 In January 2011, Siemens Gamesa identified Hull as its preferred location for the construction of a new offshore wind turbine factory. This provides further evidence the importance of the Humber as a manufacturing and port hub for the offshore wind sector and



in particular in relation to the proximity to the Hornsea Projects 1-4. The resultant collaboration between ABP and Siemens Gamesa has been a catalyst for the Green Port Hull vision and the capacity of the Siemens facility is to double in size; accordingly, this is not an alternative site to AMEP but an asset that can function alongside AMEP within the Humber cluster.

Bathside Bay

- 2.88 Bathside Bay lies within the Stour and Orwell Estuaries SPA and Ramsar site. It also lies within the Stour Estuary SSSI. Bathside Bay is located on the south bank of the river Stour in Essex next to the existing port of Harwich and is approximately 220 kilometres from Hornsea Project 4 and approximately 62 kilometres from East Anglia Two. An aerial view of Bathside Bay is shown in **Figure 2-7**.

Figure 2-7: Aerial View of Bathside Bay



- 2.89 Bathside Bay was given planning permission in 2006 for a container terminal. The consent was limited to ten years but the recession affected the growth of the container market and demand did not justify its construction. Hutchison Ports (UK) Ltd (HPUK) had previously sought to extend the consent. If constructed, the project would have seen up to 113 ha of port land reclaimed.
- 2.90 The consented development would have resulted in the direct loss of 69 ha of intertidal feeding habitat within the SPA. As a consequence the development was assessed to have an adverse effect on the integrity of the designated site and a 138 ha managed realignment site was secured to compensate for the damage to the coherence of the National Site Network. The development was consented on the basis that there were IROPI for a container terminal to be developed at the site and that no alternatives existed.
- 2.91 The Bathside Bay site was previously presented as part of Freeport East (**Figure 2-8**), which consisted of a 122-ha site green energy hub intended to support large-scale manufacturing and marshalling of offshore wind turbines and components to serve the UK and overseas offshore wind market. The port was also home to the RWE's O&M base for the Galloper windfarm. In common with the previous proposals for a container terminal, the port would provide a quay length of 1,400m and water depth of 15m.



- 2.92 The site now benefits from a planning permission (ref. 23/01594/FUL¹¹) which granted consent for the *“Temporary use of Bathside Bay container terminal permitted under planning permission 10/00202/FUL dated 14 February 2013 as varied by permission 21/01810/VOC dated March 2022 (BBCT Permission) for wind turbine storage, staging, marshalling and assembly including the import and export, handling and deployment of concrete substructures, moorings, anchors and array cables and other related offshore green energy paraphernalia followed by decommissioning to enable continuation of container terminal use under the BBCT Permission”*.

Figure 2-8: Illustrative image of Freeport East Harwich



- 2.93 In conclusion of the above, whilst the scale of Freeport East is substantial (albeit smaller scale than AMEP) and in excess of 100 ha could feasibly be located on this site, such development would result in the loss of more National Site Network land than the AMEP site, whilst providing less land for manufacturing.

Sheerness

- 2.94 The Port of Sheerness is located on the bank of the Medway near its confluence with the Thames. An aerial view is shown in **Figure 2-9**. The port is approximately 123 km from the East Anglia Two zone and 300 km from the Hornsea Project 4 zone. Sheerness is not located within in a European designated site although the Thames Estuary and Marshes SPA and the Medway Estuary and Marshes SPA are both in close proximity.

¹¹ https://idox.tendingdc.gov.uk/online-applications/files/870C2B5FE896908BCBBB9E50765973D0/pdf/23_01594_FUL-PLANNING_STATEMENT_-_REC_D_08.11.23-1930594.pdf



Figure 2-9: Aerial View of Sheerness



- | | |
|-----------------|-----------------------------|
| 1. Ridham Dock | 4. Sheerness |
| 2. Neats Court | 5. Isle of Grain |
| 3. Queenborough | 6. Kingsnorth (off picture) |

- 2.95 The Port has had significant recent investment including a new Fresh Fruit Terminal, which included a new 160-metre berth and a 30,000 m² fully temperature-controlled storage and distribution complex. The port also serves the pulp needs of Kent's busy papermills, and large volumes of pulp are transhipped coast-wise from Sheerness to Scotland for papermaking. The port also handles vehicle exports and imports and the Lappel Bank, an area reclaimed by Medway Ports over the past 20 years, provides 76 hectares of dedicated secure vehicle storage.
- 2.96 In terms of quayside, the jetty and pier arrangement are not suitable for use by the offshore wind industry and the quay could only be made suitable by land reclamation works.
- 2.97 In addition to the existing port estate, there are a number of additional sites that are all within 10 kilometres of the port by road or barge. These include Ridham Docks (6 ha, 200m quay, 6.2m draft), Queenborough (12 ha) and Neats Court (36 ha). On the north bank of the Medway, there is a 46-ha site at Kingsnorth and up to 150 ha on the National Grid's Isle of Grain site. Both sites are currently undeveloped and would require the construction of port facilities, with substantial dredging envisaged to create suitable deep-water berths due to adjacent areas of foreshore exposed at low tide.
- 2.98 While the port is able to offer parcels of land almost immediately, these are currently too small. The additional sites in the surrounding area could help meet the total land requirement but the benefits of clustering would potentially be diminished by the need to load units onto barges to be moved between sites.
- 2.99 The location of the Sheerness site also means that while it is well located to serve the East Anglia Two zone and the southern North Sea, it is not as favourably located for the Hornsea Project 4 zone. In conclusion of the above, an 80-ha site or thereabouts could feasibly be located at Sheerness but such development would:



- permanently displace a significant quantum of existing international trade activity and associated existing local employment;
- need development of the existing quays including land reclamation and potentially dredging; a likely significant effect on nearby SPA's cannot be excluded; and
- provide a less optimal geographic location than AMEP and thereby give rise to a greater overall carbon footprint from vessels travelling to the two main Round 6 offshore development zones.

Southampton

2.100 The port of Southampton is shown in **Figure 2-10** is approximately 360 km from East Anglia Two, and approximately 565 km from the Hornsea Project 4 zone.

Figure 2-10: Aerial View of Southampton (Dibden Bay)



- 2.101 It is owned and operated by ABP and is located on the UK's south coast. It is a mixed-use port, handling a range of traffic including cars, containers and cruise liners. The main port is heavily utilised with limited spare land available but it does have a 323 ha site called Dibden Bay available on the western bank of the River Test. Dibden Bay lies within the Solent Maritime SAC, and the Solent and Southampton Water SPA and Ramsar sites. All of these habitats fall within the Hythe to Calshot SSSI.
- 2.102 The Dibden Bay site was the subject of a £600 million proposal submitted by ABP in 2000 for a deep water container terminal with a 1,850 m quay and 202 ha of port facilities. However the application faced strong local opposition and was rejected on environmental grounds in 2004 following a public inquiry. According to the Inspectors Report (The Planning Inspectorate, 2003):
- '(t)he construction of the proposed quay, and the dredging of the deep-water berthing pocket and approach channel, would entail the destruction of some 76ha of inter-tidal mudflat on the Dibden foreshore, together with 52ha of shallow sub-tidal habitat. This harm is unavoidable if the project proceeds. It cannot be mitigated,'* (paragraph 7.94).
- 2.103 The site is currently undeveloped with no quay and any proposal would require planning permission or development consent to proceed.
- 2.104 While the Dibden Bay site would meet the requirements for a Marine Energy Park, its location on the south coast means it is too far from the main North Sea sites to be viable as



major turbine manufacturing and construction cluster. Development would also result in significant environmental impact to a designated site.

- 2.105 In conclusion of the above, a large MEP could feasibly be located on this site, but such development would:
- preclude its potential development as a container terminal in the future;
 - result in the loss of significantly more National Site Network land than the AMEP site whilst providing only a small additional area of land for manufacturing; and
 - provide a far less optimal geographic location than AMEP and thereby give rise to a much greater overall carbon footprint from vessels travelling to the three main offshore development zones.

Summary of Alternative Sites

- 2.106 A summary of salient features relating to alternative sites is detailed in **Table 2-3**. There is no alternative site that is of an equivalent scale to AMEP except for Southampton and development of that site would result in the loss of significantly more of the National Site Network than would AMEP. Whilst a combination of other smaller cluster sites could provide an equivalent distributed facility, the sites in Scotland, Nigg and Ardersier, are remote from the main Round 6 development zones and this would result in a significantly greater operational carbon footprint for the facility than AMEP.
- 2.107 An assessment of the relative carbon footprint associated with a cluster site compared to a UK distributed site, and a continental distributed site is reproduced in **Annex 6.2** to the original ES.

Conclusions

Stage 2A

- 2.108 From the above assessment, there are no sites outside of the National Site Network capable of supporting a marine energy park that would achieve AMEP's objectives.

Stage 2B

- 2.109 From the above assessment, only Southampton (Dibden Bay) has a land parcel of sufficient scale to support AMEP. However, development of Southampton would have a greater impact on the National Site Network than development of the AMEP site (as evidenced by the previous refusal of the ABP container port application), provide no socio-economic benefit to the Humber Assisted Area, and its operation would generate a greater carbon footprint than AMEP for support to the Round 6 zones.

Stage 2C

- 2.110 From the above assessment, only the Port of Hull, the Port of Sheerness and Bathside Bay (Freeport East Harwich) are likely to be viable. Of these three, the development of Bathside Bay would have a greater scale of impact on the National Site Network than development of the AMEP site. The remaining two are existing ports and their development would displace existing or proposed international trade capacity.
- 2.111 The Port of Hull has existing turbine manufacture for Siemens Gamesa, which is expanding, and as such is not an alternative to AMEP; it is needed as well. The provision of a facility at Hull would not remove the urgent need for windfarm manufacturing that drives the requirement for a facility of the scale of AMEP.



- 2.112 The Port of Sheerness has been identified by Vestas for turbine manufacturing, and as such is not an alternative to AMEP; it is needed as well. Manufacturing at the Port of Sheerness would however displace existing international trade activity that will erode the buffer capacity of the UK's existing port infrastructure.

Overall Stage 2 Conclusion

- 2.113 The updated assessment undertaken concludes that there is no reasonable alternative site to AMEP that would have a less damaging effect on the National Site Network and can meet the project objectives. Other, smaller potential development sites will be needed as well and are therefore not alternatives.



Table 2-3: Summary of Alternative Sites

	Nigg	Ardersier	Southampton	Sheerness	Bathside Bay	ABP Hull	Able Humber
Area Available (ha)	70 (234 ha proximal land is on sloping ground)	109 (28 ha additional land available)	323	50 (+ potential for an additional 85 ha)	113	82	330
Potential Quay Length (m), and Draught	420m @ 12m (existing)	1,000m @ 12m (new quay req'd)	1,850m @ 16m (new quay req'd)	800m @ 9m (new quay req'd)	1,400m @ 15m (new quay req'd)	600m @ 11m (new quay req'd)	1200m @ 11m (new quay req'd)
SPA/SAC Site	Cromarty Firth SPA/Ramsar	Moray Firth SAC, Inner Moray Firth SPA/Ramsar	Solent Maritime SAC, Southampton Water SPA/Ramsar	Proximal to Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA	Stour and Orwell Estuary SPA/Ramsar	Humber Estuary SPA/SAC/Ramsar	Humber Estuary SPA/SAC/Ramsar
Area of National Site Network likely to be adversely affected	Unquantified indirect effects	Unquantified indirect effects	Up to 128 ha	Unquantified indirect effects	69 ha	4 ha	55 ha
Proximity to Round 6 Wind Farm zones (km/NM):							
Hornsea Project 4	526km / 284nm	514km / 277nm	565km / 305nm	300km / 162nm	220km / 118nm	95km / 51nm	93km / 50nm
East Anglia Two	729km / 393nm	717km / 387nm	360km / 194nm	123km / 66nm	62km / 33 nm	279km / 151nm	277km / 149nm
Existing Planning Consents	No, existing use is for offshore fabrication	Yes, site has been remediated for housing	No, application for container terminal refused in 2004	No, operational port activity would be displaced	Yes, for container terminal that would be displaced.	Yes, for container terminal that would be displaced.	Yes, on terrestrial areas for 116 ha of port related storage



Updated Stage 3A: Alternative Scale of Development

Reducing the Scale of Development

- 2.114 AMEP comprises the development of 223 ha of land for manufacturing of components that need direct access to a quay. It has been demonstrated in Chapter 5 of the original ES that there is a significant need for land to be developed for this use in the UK; this continuing need has been confirmed within this updated report.
- 2.115 AMEP is not of a sufficient scale in itself to meet the overall need – other developments are required as well. Reducing the scale of the development would merely transfer the need for that quantum of development omitted to be located elsewhere. However, the number of potential alternative sites is limited; other sites are needed as well and others are also located within, or adjacent to, the National Site Network themselves. Accordingly, the alternative of reducing the scale of the development is discounted as it inconsistent with the imperative need to urgently provide significant facilities for the manufacture of marine energy products.

Stage 3A Conclusion

- 2.116 Owing to the scale of expansion and investment required in support of the UK offshore wind sector; the limited number of reasonable alternative sites and the likely displacement effects of reduced scale at AMEP requiring increased scale elsewhere, it is concluded that there are no reasonable alternative reduced scale of development.

Updated Stage 3B: Alternative Designs

- 2.117 Offshore energy component parts are of a significant size and weight. **Table 2.1** shows how the scale of turbine components has increased as generating capacity of individual units grows.
- 2.118 The movement of such oversized and heavy components require heavy duty craneage – in excess of 1,000 tonne rated capacity – and self-propelled mobile transporters. Such plant imparts heavy concentrated loads on the ground or any supporting structure over which it travels. The components themselves require commensurately large laydown areas and areas for pre-assembly into the fewest possible parts for shipping and installation offshore.
- 2.119 Because of the size and weight of the sub-components of the OWT, pre-assembly takes place at the quayside where goods are stored in preparation for loading. The land immediately behind the quay is therefore a large storage and assembly – an area of 15 ha is currently required by the offshore sector behind each installation quay.
- 2.120 A modern construction port is illustrated in **Figure 2-11**.



Figure 2-11: Able Seaton Port in Use for Dogger Bank A, B and C¹²



2.121 Alternative designs for a pier and jetty arrangement of quays and for a suspended quay are considered in Annex 4.4 of the original ES. They were discounted as being not fit for the purposes of the offshore energy sector.

Stage 3B Conclusion

2.122 By virtue of the specific spatial requirements associated with the manufacture, storage and transportation of offshore wind turbine components, there is no reasonable alternative design that will be fit for use by the offshore energy sector.

Updated Stage 4: Alternative Operation of the Facility

Introduction

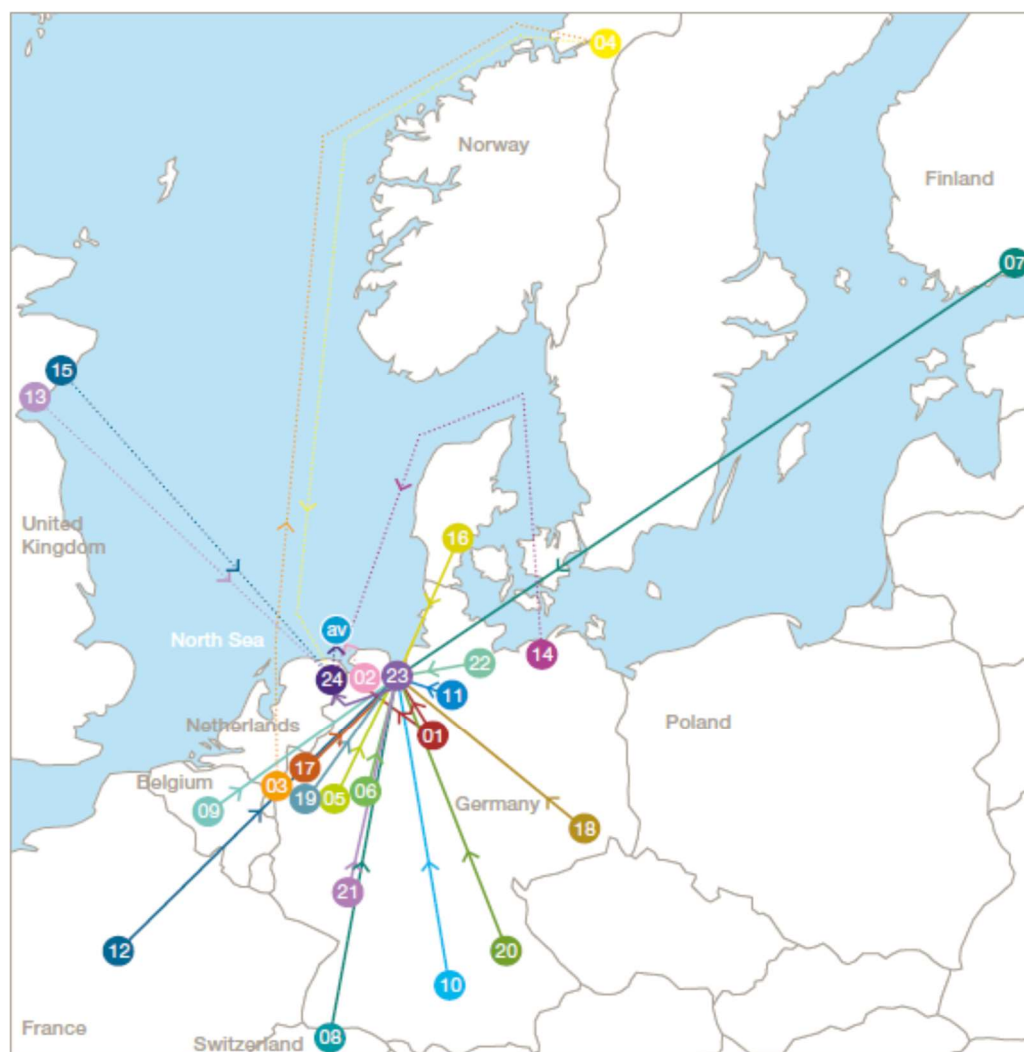
2.123 The focus of this section of the reasonable alternatives assessment is whether there is a reasonable alternative to the way that AMEP would be operated as a combined manufacturing facility and construction port.

2.124 The onshore manufacturing sector is widely distributed, an example of which is shown in **Figure 2-12**, and this has historically led to significant logistical challenges in transporting sub-components to the construction ports for preassembly before shipping to the wind farm site itself.

¹² <https://www.ableuk.com/able-seaton-port>



Figure 2-12: Distributed Supply Chain for the Alpha Ventus Wind Farm¹³



Logistics of a wind farm: The map shows various production locations and delivery routes for the components.

2.125 Issues associated with the nature and scale of the offshore wind industry supply chain were a focus of the Ostend North Sea Summit in April 2023 in relation to the European challenge of being able to increase from production of 7 GW a year of offshore wind to over 20GW a year by the second half of this decade. An industry declaration following the Ostend Summit on behalf of more than 100 companies associated with the European offshore wind sector outlined the urgent need to strengthen Europe’s wind energy manufacturing capacities, citing bottlenecks in the manufacturing of foundations, cables, substations and in the availability of installation, service and other offshore wind vessels.

Environmental Benefits of Combined Manufacturing Facilities and Construction Ports

2.126 At a combined site, manufactured products can be transferred to a goods handling zone with quays that are specifically designed for use by installation vessels. This avoids transshipment of finished components to other ports and provides an environmental benefit by cutting CO₂ emissions from shipping that would otherwise arise from “double handling” the manufactured products. The environmental benefit, in terms of reduced CO₂ emissions, of the operation of a significant combined facility is set out in Annex 6.2 of the original ES.

¹³ Source: www.alpha-ventus.de



Economic Benefits of Combined Manufacturing Facilities and Construction Ports

- 2.127 If the current approach to manufacturing and assembly continues, then the potential economic benefits of scale will be diminished. The delivery of offshore windfarms is far less likely to undergo a step change in scale and as a result the UK is far less likely to meet the renewable energy targets set out in the 2023 Energy White Paper and Net Zero Strategy. The challenge of sourcing and then coordinating the delivery of many different components to a remote construction quay is an unnecessary cost.

Health and Safety Considerations

General

- 2.128 In considering alternative methods of operation, it is necessary to consider the impact on the health and safety of persons who will be working on the site and on offshore windfarm installation generally. The guiding principle is that risks to the workforce should be ‘as low as reasonably practicable’, or ALARP. For a risk to be ALARP it must be possible to demonstrate that the cost involved in reducing the risk further would be grossly disproportionate to the benefit gained. It is often a judgment of the balance of risk and societal benefit.

The Management of Health and Safety at Work Regulations 1999

- 2.129 This Directive introduced measures to encourage improvements in the safety and health of people at work. Article 6 of the Directive places general obligations on employers as follows:

‘1. Within the context of his responsibilities, the employer shall take the measures necessary for the safety and health protection of workers, including prevention of occupational risks and provision of information and training, as well as provision of the necessary organization and means.

The employer shall be alert to the need to adjust these measures to take account of changing circumstances and aim to improve existing situations.

2. The employer shall implement the measures referred to in the first subparagraph of paragraph 1 on the basis of the following general principles of prevention:

(a) avoiding risks;

(b) evaluating the risks which cannot be avoided:

(c) combating the risks at source;

(d) adapting the work to the individual, especially as regards the design of work places, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work-rate and to reducing their effect on health.

(e) adapting to technical progress;

(f) replacing the dangerous by the non-dangerous or the less dangerous;

(g) developing a coherent overall prevention policy which covers technology, organization of work, working conditions, social relationships and the influence of factors related to the working environment;

(h) giving collective protective measures priority over individual protective measures;

(i) giving appropriate instructions to the workers.’



- 2.130 The Directive is transposed into UK law by the Management of Health and Safety at Work Regulations 1999; which in themselves have not been amended since Brexit. Accordingly, in considering alternative means of operation, even at this stage, it is necessary to consider whether risks are being introduced that can be avoided.

Alternative 1: No Pre-Assembly on site

- 2.131 The development could potentially operate as a manufacturing facility with an import/export quay only. All products manufactured at the site would be exported to a separate construction port. There, they would be stored in preparation for the installation campaign. There are however significant adverse safety considerations with this approach.

Logistical Challenge

- 2.132 In *Alternative 1* a number of shipping movements are required in order to transfer the goods produced by the manufacturers to a separate construction port. The construction port needs to be equipped with duplicate cranes and the same heavy transporters as the manufacturing site. Once the installation commences the products will need to be taken back to the quay for assembly and loading back onto a vessel. Developers are therefore duplicating plant and resources.

The Safety Case

- 2.133 In *Alternative 1* a number of heavy lifting operations are undertaken that can be avoided compared to pre-assembly being undertaken at the manufacturing port. Whilst good planning and adherence to good practice, can mitigate the risk of an accident occurring during a crane lift, human error, inevitably, remains. Unfortunately where an incident does occur during a heavy lift, the consequences can be severe. Accidents are only one health implication of crane-lifts however; in this particular alternative any overall assessment would also need to consider the health impacts caused by producing, using and maintaining all of the duplicated plant. Furthermore, fuel production and use leads to emissions, which in turn has health impacts.
- 2.134 The occupational hazards associated with offshore wind farms have been considered in a major risk study reported by the Health and Safety Executive. This concluded that the principal safety hazards arise from:

'Construction and major repair: operation of jack-up construction barges and associated lifting operations during tower and nacelle erection. These health and safety issues may be more challenging in the future, as the new generation of wind turbines become significantly larger and taller.

Operation (maintenance and minor repair operations): primary issues are access and egress (frequent personnel transfers between boats/construction vessels/towers), working at height, and emergency response. It is anticipated that each offshore wind turbine could require up to six maintenance or repair visits per year', (HSE, 2006, emphasis added).

- 2.135 The 2023 Incident Data Report produced by G+ Global Offshore Wind Health and Safety Organisation reported recorded a total of 1,679 incidents within the global offshore wind sector worldwide in 2023, up from the 867 recorded in 2022. This represented a 94% increase. In the UK, there were 502 recorded incidents in 2023, up from 348 in 2022. The report highlighted three areas which saw a substantial increase in reported safety incidents: onshore and offshore substations, service operation vessels, and onshore turbine assembly. Incidents associated with from onshore turbine assembly activities rose by 75%, with 56 recorded in 2023.



- 2.136 It is clear from the above that in accordance with ALARP principles, lifting operations should be kept to an absolute minimum. Using a separate construction port should be avoided where it is reasonably practicable to do so and accordingly, the development should incorporate construction quays for any wind farms within reasonable sailing time.
- 2.137 *Alternative 1* is discounted as it introduces demonstrable and unnecessary risks for those people working on the construction and installation of marine energy projects; it prolongs the construction programme, increases costs and increases the environmental impact of the operations being undertaken.

Alternative 2: Maximum Pre-Assembly on Site

- 2.138 This is the alternative proposed and provides an optimal environmental and economic solution and reduces risks to as low as reasonably practical by substantially reducing trans-shipment of goods to a construction port.

Summary and Conclusion

The Project

- 2.139 The proposed development incorporates a quay that adversely affects protected features within the Humber Estuary SAC. It is also likely to have an adverse effect on features of the Humber Estuary SPA and Ramsar site.

The Project Objectives

- 2.140 The project will contribute towards the achievement of three key objectives of UK Energy Policy, viz.
- decarbonise the means of electricity production;
 - provide secure energy supplies for the UK;
 - improve UK competitiveness by creating jobs and growth in a sector in which the UK is a global leader.
- 2.141 In particular the project will:
- provide facilities for the manufacture of large-scale offshore energy components;
 - contribute to ‘rebalancing’ the UK economy by enabling the development of a significant manufacturing cluster - such a cluster will have a beneficial impact on the competitiveness of the UK and wider European offshore wind industry; and
 - regenerate the Humber Estuary sub-region, an economically deprived area of the UK.

The Habitats Regulations

- 2.142 In accordance with the Conservation of Habitats and Species Regulations 2017, where an appropriate assessment concludes that the project will give rise to significant adverse effects on a European Site and that these cannot be fully mitigated, then the project may only be consented where: there is a need; there are no reasonable ‘*alternative solutions*’, ‘*the plan or project must be carried out for imperative reasons of overriding public interest*’ and acceptable compensatory land is secured. This report has considered whether there is any alternative solution to the need that would have a lesser effect on the National Site Network.



The Alternative Solutions

General

- 2.143 Any alternative solution must meet the project objectives noted above.

Do Nothing or Zero Option

- 2.144 The growth of the marine renewable energy sector and specifically the offshore wind sector is rooted in UK energy policy.
- 2.145 Next generation offshore wind turbine manufacturing facilities must have direct access to a quay as they are too heavy and large to transport by road or rail. A quay is therefore an essential requirement for new offshore turbine manufacturing facilities.
- 2.146 The zero option, which is that there are no new quays for use by the offshore renewable energy sector, can be discounted.

Alternative Sites

- 2.147 A number of port sites have been identified, which could be developed to serve the offshore wind industry in some capacity. Of the 16 potential locations, eight have been shown to have clear size limitations in terms of their development as a manufacturing and construction port cluster. The remaining alternatives to AMEP are Nigg, Ardersier, Dundee, ABP Hull, Bathside Bay, Southampton and Sheerness.
- 2.148 There is no alternative site that is of an equivalent scale to AMEP except for Southampton and development of that Dibden Bay site would result in the destruction of significantly more of the National Site Network than would the development of AMEP. This location has also previously had major port development refused based on impact to the National Site Network.
- 2.149 Whilst a combination of other smaller cluster sites could provide an equivalent distributed facility this would result in a significantly greater operational carbon footprint for the facility than AMEP. An assessment of the relative carbon footprint associated with a cluster site compared to a UK distributed site, and a continental distributed site is reproduced in Annex 6.2 of the original ES.

Alternative Scale of Development

- 2.150 AMEP is not of a sufficient scale in itself to meet the overall need – other developments are required as well. Reducing the scale of the development would merely transfer the need for that quantum of development omitted to be located elsewhere. However, the number of potential alternative sites is limited; other sites are needed as well and others are also located within, or adjacent to, the National Site Network themselves.

Alternative Designs for the Development

- 2.151 The offshore renewable energy sector requires facilities that allow manoeuvring of very large and very heavy components. These components need direct access from their place of manufacture to an export quay. Pre-assembly of several large components close to the quay is also required, necessitating laydown areas and areas for heavy lift crannage. The result is that the quay needs to be fully reclaimed to provide a design that is fit for purpose. There is no feasible alternative design.



Alternative Means of Operation

- 2.152 Providing a bespoke facility that enables manufactured products to be shipped directly to their place of installation minimises the carbon footprint of the operational facility, provide economic benefits, and minimise risks from heavy lifting operations.



3.0 IROPI

Introduction

- 3.1 This section of the report seeks to provide an update on the Imperative Reasons of Overriding Public Interest (IROPI) following the submission of an Article 7 for an extension of time for completion of the works at Able Marine Energy Park.
- 3.2 This update has concentrated on updating the IROPI to ensure that any changes in legislation, guidance, policy, needs, economic considerations or justification of the project are consistent at the time of writing. However, it should be duly recognised that a significant proportion of the original IROPI remains valid and is repeated herein.

Changes in Legislation, Guidance and Policy

Legislation

- 3.3 The Conservation of Habitats and Species Regulations 2017 were adopted subsequent to the completion of the original IROPI and subsequently amended through The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
- 3.4 Notwithstanding, the pertinent Regulations still identify within Paragraph 64 (1) that *“If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be).”*
- 3.5 Paragraph 68 subsequently identifies that: *“Where in accordance with regulation 64 —*
(a) a plan or project is agreed to, notwithstanding a negative assessment of the implications for a European site or a European offshore marine site, or
(b) a decision, or a consent, permission or other authorisation, is affirmed on review, notwithstanding such an assessment,
the appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 [National Site Network] is protected.”
(SLR Amend)
- 3.6 This report seeks to provide a comprehensive update to the original IROPI case to ensure that the imperative reasons of overriding public interest that relate to the project are still relevant and appropriate.

Guidance

- 3.7 ‘Managing Natura 2000 Sites: The Provision of Article 6 of the ‘Habitats Directive 92/43/EEC’ (EC, 2000) has been superseded by the use of the following government guidance documents:



- Appropriate Assessment – published July 2019¹⁴; and
- Habitats Regulations Assessments: Protecting a European Site – published February 2021 and last updated December 2023¹⁵.

3.8 The Appropriate Assessment guidance identifies at Paragraph 001 that “*Where an adverse effect on the site’s integrity cannot be ruled out, and where there are no alternative solutions, the plan or project **can only proceed if there are imperative reasons of over-riding public interest** and if the necessary compensatory measures can be secured*” (emphasis added).

3.9 Within the Habitats Regulations Assessments: Protecting a European Site guidance, outlines in Section 3 (Derogations: allow exceptions) that “*In certain circumstances, you can allow a proposal that’s failed the integrity test to go ahead. This is known as a derogation.*

You should tell the proposer as soon as possible if you’ll consider a derogation on a proposal that’s failed the integrity test. It must pass all 3 legal tests for a derogation to be granted.

Derogations: 3 legal tests

To decide if the proposal qualifies for a derogation, you must apply the 3 legal tests in the following order:

1. *There are no feasible alternative solutions that would be less damaging or avoid damage to the site.*
2. ***The proposal needs to be carried out for imperative reasons of overriding public interest.***
3. *The necessary compensatory measures can be secured.*

You should make sure that you record all your findings, including a failed test” (emphasis added).

3.10 The guidance continues by providing further information on the undertaking of Test 2 which relates to IROPI, stating:

“If there are no feasible alternative solutions, you must next be able to show that there are imperative reasons of overriding public interest why the proposal must go ahead. These must justify the proposal, despite the damage it will or could cause to the European site.

You must decide if the proposal is:

- *imperative - it’s essential that it proceeds for public interest reasons*
- *in the public interest - it has benefits for the public, not just benefits for private interests*
- *overriding - the public interest outweighs the harm, or risk of harm, to the integrity of the European site that’s predicted by the appropriate assessment*

National strategic plans, policy statements and major projects are more likely to have a high level of public interest and be able to show they are imperative and overriding. Plans or projects that only provide short-term or very localised benefits are less likely to be able to show imperative reasons of overriding public interest.”

¹⁴ <https://www.gov.uk/guidance/appropriate-assessment>

¹⁵ <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>



- 3.11 In considering the overriding public interest, the guidance identifies that this would normally consider the following:
- human health;
 - public safety; and
 - important environmental benefits.
- 3.12 However, where other reasons of overriding public interest are wished to be considered (i.e. social or economic benefits), these must be at the discretion/opinion of the relevant national government in England or Wales.
- 3.13 Only where a proposal meets the requirements of Test 1 (alternatives) and 2 (IROPI) should the competent authority consider the requirements of Test 3: secure compensatory measures.

Summary of The Basic Case

- 3.14 Fundamentally, the project will deliver socio-economic benefits to the UK generally and the Humber Estuary sub-region in particular by enabling the growth of the emerging renewable energy sector. It will also have beneficial consequences of primary importance for the environment by enabling the UK's continued transition to low carbon energy production. Within the Government's Policy Paper 'Powering Up Britain: Net Zero Growth Plan' (April 2023)¹⁶.
- 3.15 Energy is essential for society to function but fossil fuel methods of energy production are damaging to the environment and rely on non-indigenous fuel sources that are not secure in the long term. To function sustainably, and to be economically competitive, government policy is for the UK economy to meet a net zero target by 2050; which extends to energy production within the UK. This strategy is outlined within a range of governmental white papers, strategies, plans and policies, including:
- Energy White Paper: Powering our Net Zero Future (December 2020)¹⁷
 - Climate Change Strategy 2021-2024 (September 2021)¹⁸
 - Net Zero Strategy: Build Back Greener (October 2021)¹⁹
 - British Energy Security Strategy (April 2022)²⁰
 - Environmental Improvement Plan 2023 (February 2023)²¹

¹⁶ <https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-net-zero-growth-plan#:~:text=In%20the%20Net%20Zero%20Strategy%2C%20government%20committed%20to%20have%20a,underpin%20our%20net%20zero%20ambitions.>

¹⁷ https://assets.publishing.service.gov.uk/media/5fcdc61e2d3bf7f3a3bdc8cbf/201216_BEIS_EWP_Command_Paper_Accessible.pdf

¹⁸ https://assets.publishing.service.gov.uk/media/6148b3ffe90e070438c9463d/UKEF_Climate_Change_Strategy_2021.pdf

¹⁹ <https://assets.publishing.service.gov.uk/media/6194dfa4d3bf7f0555071b1b/net-zero-strategy-beis.pdf>

²⁰ <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

²¹ <https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64ffa/environmental-improvement-plan-2023.pdf>



- Powering Up Britain: Energy Security and Net Zero (March 2023)²²
 - Offshore Wind Net Zero Investment Roadmap (March 2023)²³
 - Powering Up Britain: Net Zero Growth Plan (April 2023)²⁴
 - Energy Act (October 2023)²⁵
 - Overarching National Policy Statement for Energy (EN-1) (November 2023)²⁶
 - National Policy Statement for Renewable Energy Infrastructure (EN-3) (January 2024)²⁷
- 3.16 The above sets out how the need for a secure, reliable, cost-effective, decarbonised power sector is critical for a modern industrial economy. In the Net Zero Strategy, government committed to have a fully low-carbon power sector by 2035, subject to security of supply, to underpin net zero ambitions. Significant emphasis is placed on the role of offshore wind within all of the above.
- 3.17 This project will address key objectives of the strategies and policies identified above by:
- Assisting in the decarbonisation of electricity production within the UK. This is a beneficial consequence of the project that is of primary importance to the environment;
 - Assisting in providing secure energy supplies for the UK; this is imperative for economic development and growth; and
 - Improving competitiveness within the UK by creating jobs and growth in a sector in which the UK is becoming a leader in renewable energy use and supply. This will have subsequent effects on socio-economic receptors through investment and economic growth.
- 3.18 Whilst none of the above objectives lie entirely within the interest of single companies or individuals, the project will:
- provide facilities for the manufacture of large scale offshore renewable energy components;
 - contribute to ‘rebalancing’ the UK economy by enabling the development of a significant manufacturing cluster - such a cluster will have a beneficial impact on the competitiveness of the offshore wind industry; and
 - contribute to the regeneration of the Humber Estuary sub-region, an economically deprived area of the UK.

²² <https://assets.publishing.service.gov.uk/media/642468ff2fa8480013ec0f39/powering-up-britain-joint-overview.pdf>

²³ <https://www.gov.uk/government/publications/offshore-wind-net-zero-investment-roadmap>

²⁴ <https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-net-zero-growth-plan#:~:text=In%20the%20Net%20Zero%20Strategy%2C%20government%20committed%20to%20have%20a,underpin%20our%20net%20zero%20ambitions.>

²⁵ <https://www.legislation.gov.uk/ukpga/2023/52/enacted>

²⁶ <https://assets.publishing.service.gov.uk/media/65bbfbd709fe1000f637052/overarching-nps-for-energy-en1.pdf>

²⁷ <https://assets.publishing.service.gov.uk/media/65a7889996a5ec000d731aba/nps-renewable-energy-infrastructure-en3.pdf>



Updated Description of Imperative Public Interests

The Environmental Imperative to Decarbonise Energy Production

- 3.19 The project will assist in enabling the transition to low carbon means of energy production.
- 3.20 There is compelling scientific evidence that rising levels of greenhouse gases in the atmosphere will have a warming effect on the earth's climate through increasing the amount of infrared radiation (heat energy) trapped in the atmosphere, 'the greenhouse effect'. In total the warming effect due to all greenhouse gases²⁸ emitted by human activities is now equivalent to around 426 ppm of carbon dioxide (July 2024²⁹) and is rising at between 2.3 – 2.8 ppm per year³⁰. Current levels of greenhouse gases are higher now than at any time in at least the past 650 000 years.
- 3.21 The potential environmental impacts of climate change are reported in the Stern Review (HM Treasury, 2006); Figure 2 from the Executive Summary is reproduced in Figure 3-1 below. Potential effects include: rising sea levels that threaten major cities; irreversible damage to ecosystems; major declines in crop yields and water shortages. These potential impacts are beyond any reasonable scientific doubt.
- 3.22 The UK government fully accepts the imperative need to reduce greenhouse gas emissions through the policies, guidance and legislation outlined above, as well as the Climate Change Act 2008 and the Climate Change Strategy 2021-2024³¹ which identifies that: *"2010-2019 was the hottest decade on record, driving dangerous weather patterns and affecting societies and ecosystems around the world. To keep the goal of limiting global mean temperature rise to 1.5 degrees within reach, global greenhouse gas emissions must be halved by 2030."* In 2019 the UK became the first major economy to pass into law a domestic requirement for net zero greenhouse gas emissions by 2050.
- 3.23 The Net Zero Strategy: Build Back Greener identifies that *"We need to act urgently and reduce emissions globally to limit further global warming. The landmark 2015 Paris Agreement agreed to hold the increase in the global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit it to 1.5°C."*
- 3.24 Within the above policies, guidance and legislation, the UK government clearly recognises the central role of electricity in the low carbon economy and in moving toward net zero greenhouse gas emissions by 2050. The need for renewable energy sources, including offshore wind, is key to delivering these targets; as such, manufacturing capacity for offshore wind turbines must also increase substantially and should be sustainably delivered in coastal / port locations.

²⁸ Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF₆), as defined in the Kyoto Protocol

²⁹ <https://climate.nasa.gov/vital-signs/carbon-dioxide/?intent=121#:~:text=It%27s%20important%20to%20understand%20that%20%E2%80%9Cparts%20per%20million%E2%80%9D,%28about%205%20to%207%20miles%29%20above%20the%20ground.>

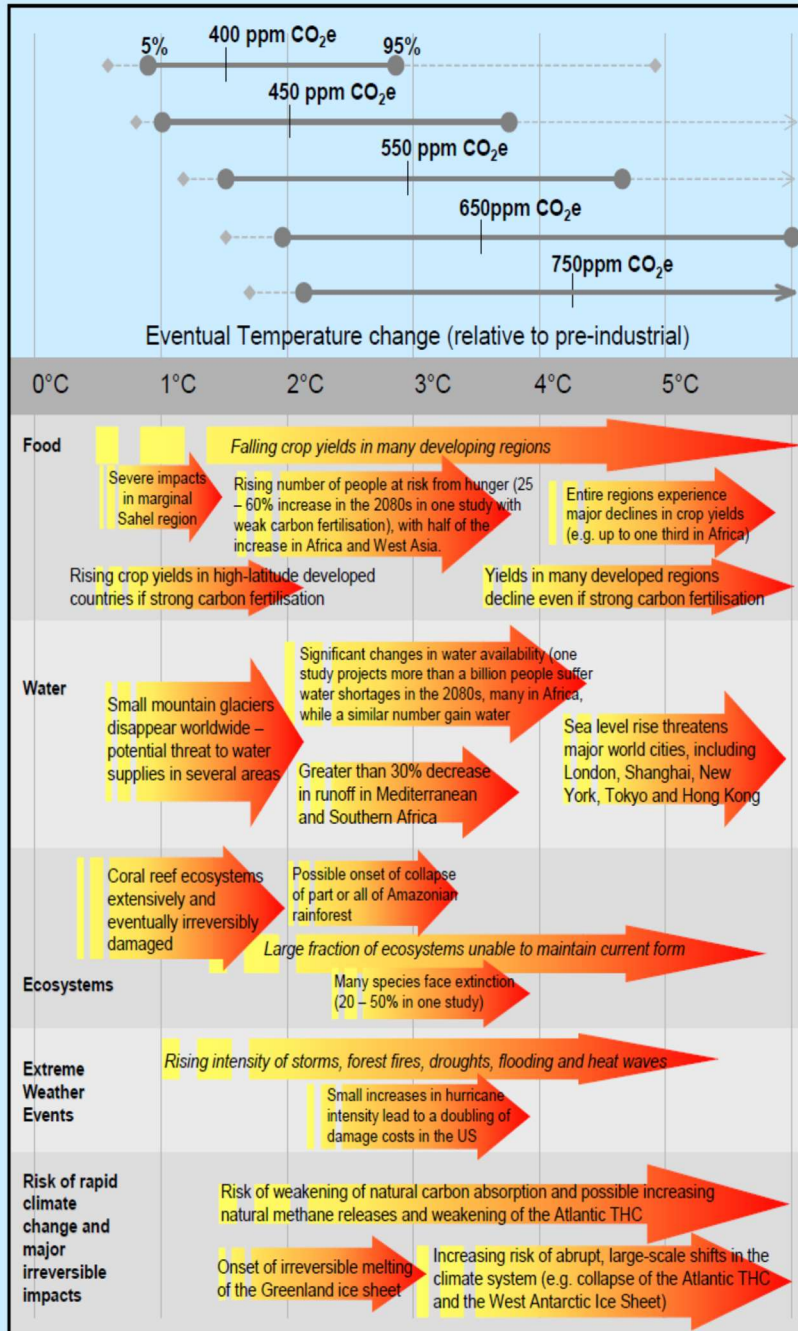
³⁰ <https://research.noaa.gov/2024/04/05/no-sign-of-greenhouse-gases-increases-slowng-in-2023/>

³¹ https://assets.publishing.service.gov.uk/media/6148b3ffe90e070438c9463d/UKEF_Climate_Change_Strategy_2021.pdf



Figure 3-1: Extract from ‘STERN REVIEW: The Economics of Climate Change’

Figure 2 Stabilisation levels and probability ranges for temperature increases
 The figure below illustrates the types of impacts that could be experienced as the world comes into equilibrium with more greenhouse gases. The top panel shows the range of temperatures projected at stabilisation levels between 400ppm and 750ppm CO₂e at equilibrium. The solid horizontal lines indicate the 5 - 95% range based on climate sensitivity estimates from the IPCC 2001² and a recent Hadley Centre ensemble study³. The vertical line indicates the mean of the 50th percentile point. The dashed lines show the 5 - 95% range based on eleven recent studies⁴. The bottom panel illustrates the range of impacts expected at different levels of warming. The relationship between global average temperature changes and regional climate changes is very uncertain, especially with regard to changes in precipitation (see Box 4.2). This figure shows potential changes based on current scientific literature.



The Imperative Need to Secure Indigenous Energy Supplies

- 3.25 Energy is the lifeblood of society. Securing energy supplies from indigenous sources is imperative for long term economic stability within the UK.
- 3.26 The Powering Up Britain (March 2023) document outlines that *“After decades of reliance on imported fossil fuels, the new department’s mission is to replace them with cheaper, cleaner, domestic sources of energy. We will be powered by renewables including wind and solar, hydrogen, power with carbon capture, usage and storage (CCUS) and new nuclear plants - while recognising the vital role that UK oil and gas will play in the transition. This will make us much more energy independent, to protect us from volatile international energy markets, while underpinning our clean energy transition, so the UK becomes a net zero economy by 2050. It will also help us make sure the UK has among the cheapest wholesale electricity prices in Europe by 2035”*.
- 3.27 Powering Up Britain continues by outlining the need for an Energy Security Plan given the current geopolitical landscape, outlining that: *“Putin’s invasion exposed mainland Europe’s over-dependence on Russian gas, with implications for affordability and security. The UK cannot ever afford to be at the mercy of a malign actor like this. The British Energy Security Strategy was clear that the long-term solution is to address our underlying vulnerability to international fossil fuel prices by reducing our dependence on imported oil and gas. Our vision is to power the UK through affordable, home-grown, clean energy:*
- *ensuring Britain has among the cheapest wholesale electricity prices in Europe by 2035;*
 - *moving towards energy independence through a potential doubling of Britain’s electricity generation capacity by the late 2030s;*
 - *maximising the vital production of UK oil and gas as the North Sea basin declines; and*
 - *capturing global early mover advantages and capitalising on the decarbonisation needs of the more than 90% of the global economy that are now signed up to net zero targets.*
- 3.28 The document continues by detailing there is in need for the UK to be more energy independent in the future, becoming more energy secure by:
- reducing energy demand and increasing the overall share of domestic energy production by building on the ambitions set out in the Net Zero Strategy and British Energy Security Strategy;
 - ensuring that where the UK still needs to import energy, including through interconnectors, that those imports are built on strong relationships with trusted partners and allies and diversified sources of supply, which will also provide access to long term export markets to support the growth of clean energy industries; and
 - building in resilience and mitigations to ensure that if there are disruptions to imports, consumers still have a reliable supply of energy.
- 3.29 With regard to building in resilience and mitigations, the Net Zero Strategy: Build Back Greener identifies that *“as we produce more of our own electricity – from wind farms in the North Sea and state-of-the-art British nuclear reactors – families will be much better protected from energy price spikes caused by volatile international fossil fuel markets. At the*



same time, by getting ahead of the curve in driving down the costs of the latest clean technology, more consumers will enjoy more efficient cars and heating systems sooner. Furthermore, by accelerating the deployment of cheap renewable power, and rolling out further energy efficiency measures, government decarbonisation policies mean that the average consumer energy bill in 2024 will likely be cheaper than it would otherwise have been.”

- 3.30 Within the Net Zero Strategy: Build Back Greener, the following key policies have been identified for energy production within the UK:
- *“By 2035 the UK will be powered entirely by clean electricity, subject to security of supply.*
 - *Secure a final investment decision on a large-scale nuclear plant by the end of this Parliament, and launch a new £120 million Future Nuclear Enabling Fund, retaining options for future nuclear technologies, including Small Modular Reactors, with a number of potential sites including Wylfa in North Wales.*
 - *40GW of offshore wind by 2030, with more onshore, solar, and other renewables – with a new approach to onshore and offshore electricity networks to incorporate new low carbon generation and demand in the most efficient manner that takes account of the needs of local communities like those in East Anglia.*
 - *Moving towards 1GW of floating offshore wind by 2030 to put us at the forefront of this new technology that can utilise our North and Celtic Seas – backed by £380 million overall funding for our world-leading offshore wind sector.*
 - *Deployment of new flexibility measures including storage to help smooth out future price spikes.”*

- 3.31 The imperative need to secure indigenous energy supplies is further emphasised within the British Energy Security Strategy (April 2022) which identifies that *“... as the global economy reopened in the aftermath of the pandemic, the sudden surge in demand for everything from new cars to foreign holidays drove a massive spike in demand for oil and gas, dramatically increasing the price of these essential fuels.*

This has been compounded by Russia’s abhorrent and illegal invasion of Ukraine. As we are part of a global market, the price we pay for gas is set internationally. And President Putin has used this against us by restricting the supply of Russian gas to the European market, further pushing up prices. The vital sanctions imposed by the UK and its allies to support the Ukrainian people will also inevitably have an adverse effect on all economies.

As a result of all these factors, European gas prices soared by more than 200% last year and coal prices increased by more than 100%. This record rise in global energy prices has led to an unavoidable increase in the cost of living in the UK, as we use gas both to generate electricity, and to heat the majority of our 28 million homes.”

- 3.32 The British Energy Security Strategy continues by detailing that *“Accelerating the transition away from oil and gas then depends critically on how quickly we can roll out new renewables. The government’s ‘Ten point plan for a green industrial revolution’, together with the ‘Net zero strategy’ and this Energy Strategy, is driving an unprecedented £100 billion of private sector investment by 2030 into new British industries including offshore wind and supporting around 480,000 clean jobs by the end of the decade.”*



- 3.33 The Energy Security Strategy emphasises that the growing proportion of the UK’s electricity coming from renewables reduces the country’s exposure to volatile fossil fuel markets and that without the renewables on the grid today, and the green levies that support them, energy bills would be higher than they are now.
- 3.34 As such, there is a critical need to build a British energy system that is much more self-sufficient. Nevertheless, the UK government is still acutely aware that there is a need to work with international partners to maintain a stable energy market and prices to protect UK consumers and reduce the use of fossil fuels globally and pivot toward clean, affordable energy.
- 3.35 The governments 10 point plan is outlined within Table 3-1 below.

Table 3-1: Government’s 10 Point Plan (British Energy Security Strategy - April 2022)

Point	Delivery Highlights
Advancing offshore wind	<ul style="list-style-type: none"> – Over £1.6 billion invested, securing 3,600 jobs – 11GW already generated, and another 12GW in the pipeline – Up to £320 million in government support for fixed bottom and floating wind ports and infrastructure – Additional government support for other low-cost renewables technologies
Driving the growth of low carbon hydrogen	<ul style="list-style-type: none"> – £7.5 million awarded to ITMs Gigastack Project, an early mover in the market, with potential to support up to 2,000 jobs over time – Preparing to allocate up to £100 million of revenue support to initial electrolytic projects – Launching £240 million to Net Zero Hydrogen Fund later in April – Developed indicative Heads of Terms for hydrogen business model contract
Delivering new and advanced nuclear power	<ul style="list-style-type: none"> – Committed to provide up to £1.7 billion of direct government funding to enable one nuclear project to FID this Parliament – Investing £100 million into Sizewell C to help develop this project – Investing £210 million to develop Small Modular Reactors with Rolls Royce – Announced a £120 million Future Nuclear Enabling Fund to progress new nuclear
Accelerating the shift to zero emission vehicles	<ul style="list-style-type: none"> – £4 billion of investment has flowed into the UK zero emission vehicle sector – Building 2 new gigafactories, in Sunderland and Blyth – 30,425 public charge-points in the UK with 100 new rapid chargers added to the UK network every month during 2021
Green public transport, cycling and walking	<ul style="list-style-type: none"> – 1,678 zero emission buses funded – Launched Active Travel England, increasing cycling by 75%
Jet zero and green ships	<ul style="list-style-type: none"> – Consulted on introduction of a UK Sustainable Aviation Fuel (SAF) mandate, requiring jet fuel suppliers to blend an increasing proportion of SAF into aviation fuel from 2025 – Allocated £23 million as part of the Clean Maritime Demonstration Competition
Greener buildings	<ul style="list-style-type: none"> – Cut VAT for insulation and heat pumps – 46% of homes in England at EPC C or above, up from 9% in 2008, and 2,300 social housing homes in the process of being improved – Over 60,000 heat pumps installations estimated by industry, now offering households grants of £5,000 towards an air source heat pump so they are cost competitive compared to a gas boiler



Investing in CCUS	<ul style="list-style-type: none"> – Committed £1 billion in public investment to decarbonise our industrial clusters – Announced the first 2 clusters in Teesside, the Humber and Merseyside – Launched phase 2 of the Industrial Energy Transformation Fund, allocating £60 million to decarbonisation technologies, with a further £100 million delivered in May and October this year
Protecting our natural environment	<ul style="list-style-type: none"> – Additional £124 million provided at Spending Review 2021 to the Nature for Climate Fund to support tree planting and peat restoration, going beyond 2019 manifesto commitment of £640 million – 13,290 hectares of trees planted across the UK in 2020 to 2021 – Launched 3 new Community Forests in Cumbria, Devon and the North-East – £5.2 billion invested in a 6 year programme of flood defences
Green finance and innovation	<ul style="list-style-type: none"> – £615 million allocated from the Net Zero Innovation Portfolio – Set the JET world record, with 59 megajoules of heat energy in a single fusion ‘shot’ that lasted 5 seconds

3.36 Therefore, irrespective of the significant adverse environmental impacts of climate change, there is a need for the UK to develop new, indigenous sources of energy in order to secure energy supplies into the future. The Energy Security Strategy, along with the more recent policy and legislation, continues by outlining how offshore wind will form a key component of the renewable energy to be delivered within the UK; including an ambition to deliver up to 50GW by 2030. Accordingly manufacturing capacity of offshore wind turbines must increase significantly.

The Need to Develop Large Scale Wind Turbines

3.37 The importance of offshore wind and need for large capacity offshore turbines is reiterated in the UK Government *Offshore Wind Net Zero Investment Roadmap* (March 2023), noting that offshore wind is an established and proven part of the UK energy mix and is set to become even more important in the future. The Roadmap highlights the need for “*Large-scale, deepwater ports for the fabrication, assembly, storage and deployment of floating offshore wind turbines*”.

3.38 Furthermore, at the time of publication (March 2023), there was an estimated 78GW of offshore wind capacity in the UK pipeline; with around 60% being fixed bottom and 40% being floating. The Roadmap also identifies that there is a clear investment opportunity for the delivery of portside infrastructure to support the manufacturing, installation, operation and maintenance of fixed foundation offshore windfarms.

3.39 This need is also reflected in the Overarching National Policy Statement for Energy, EN-1 which states as part of delivering a secure, reliable, affordable, net zero consistent system in 2050, UK government announced in the British Energy Security Strategy³² an ambition to deliver up to 50 gigawatts (GW) of offshore wind by 2030, including up to 5GW of floating wind.

3.40 The National Policy Statement for Renewable Energy Infrastructure (EN-3) (January 2024) includes a section on Offshore Wind (Section 2.8) which outlines that “*the Government expects that offshore wind (including floating wind) will play a significant role in meeting*

³² <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

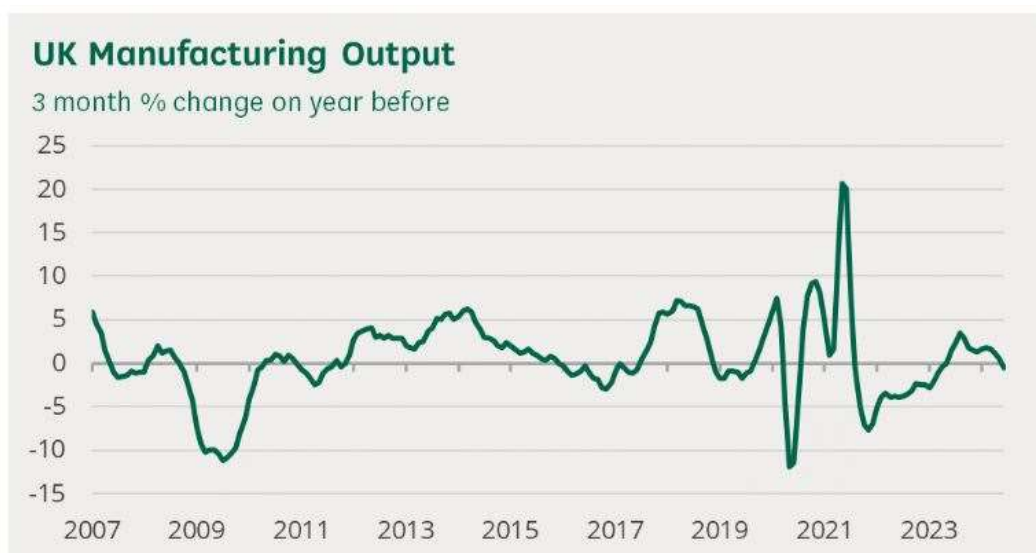


demand and decarbonising the energy system. The ambition is to deploy up to 50GW of offshore wind capacity (including up to 5GW floating wind) by 2030, with an expectation that there will be a need for substantially more installed offshore capacity beyond this to achieve net zero carbon emissions by 2050”.

- 3.41 The remainder of National Policy Statement for Renewable Energy Infrastructure (EN-3) deals with the environmental considerations that should be made by the Secretary of State when determining renewable energy schemes within the UK.

The Imperative Need to Rebalance the UK Economy

- 3.42 The concept of a “rebalanced” economy has become central to the debate on how the UK can emerge from recession and generate sustainable growth. One major imbalance is considered to be the level of manufacturing in the UK compared to other industrialised countries. In the UK, manufacturing and associated employment has declined rapidly in recent decades, with the proportion of manufacturing workforce jobs in Yorkshire and the Humber reducing from 17.9% in 1996 to 10% in 2024; this compares to a corresponding UK fall from 15.2% to 7%³³ Recent trends in UK manufacturing output are shown below³⁴.



- 3.43 The European Wind Energy Supply Chain (Rystad Energy, 2023) suggests that “*noteworthy European countries in the current wind supply chain include Germany, Spain and Denmark, all of which have significant activity linked to producing the main components of wind turbines – blades, nacelles, and towers. In recent years, France has also emerged as one of the key countries, with new blade and nacelle manufacturing plants. For offshore wind foundations, key producers include the Netherlands, Germany, and Denmark. Unsurprisingly, these countries are also among the leaders in terms of installed capacity for offshore wind in Europe. Most of these facilities are in port cities, facilitating sea transport.*”

³³ https://www.nomisweb.co.uk/reports/lmp/gor/2013265923/subreports/gor_wfjsa_time_series/report.aspx?

³⁴ <https://commonslibrary.parliament.uk/research-briefings/sn05206/>



- 3.44 A result is that 80 percent to 90 percent of the historic capital value in UK offshore wind farm projects has been based on imported goods and services and the economic benefits to the UK have been very limited (Garrad Hassan, 2010).
- 3.45 The aforementioned aspirations for an increase in the contribution of the UK offshore wind sector to achieving Net Zero requires urgent and significant investment in new manufacturing facilities and port infrastructure. This investment must be market led, and for the UK to benefit significantly from private sector investment in new manufacturing facilities, it must provide suitable development sites, including deep water port installations.
- 3.46 The UK Government has provided grants to manufacturing facilities through the Offshore Wind Manufacturing Investment Scheme with an expectation for these new facilities to boost supply chain capacity for the offshore wind industry. In this regard, the project will enable significant investment in manufacturing in the growing marine energy sector in the UK.
- 3.47 In The Advanced Manufacturing Plan (December 2023)³⁵, the government outlined a prioritisation of investing in the long-term future of manufacturing within the UK, whilst acknowledging a need to cooperate internationally in building supply chain resilience and needing to seek to reduce costs and remove barriers to competitiveness. With regard to offshore wind, the Plan identifies that *“Through the new £960 million Green Industries Growth Accelerator (‘the Accelerator’), we are supporting the development of green manufacturing industries, namely carbon capture, utilisation and storage (CCUS), hydrogen, electricity networks and offshore wind.”*
- 3.48 In summary, the offshore manufacturing sector has enormous potential to support economic recovery by creating financial and strategic value. It can help realise value from the country’s distinctive science and technology base and provide employment opportunities for people with a wide range of abilities and skills. The continued growth in manufacturing, especially within the Green Industries, is essential to the UK economy.

The Need to Regenerate the Humber Sub-Region

- 3.49 A specific imbalance in the UK economy is that between the economic output of different parts of the UK. The past three decades have seen a widening of regional differences in economic growth and job creation in the UK. London and the South East have experienced robust growth, benefiting from the concentration of business and financial services in those areas, whilst the north of England, Northern Ireland and Wales have all lagged behind. This creates economic and social issues that consecutive governments have attempted to rectify. In the short term, regional disparities are likely to become accentuated as heavy public spending cuts hit all regions of the UK in the next few years. The Humber sub-region is an area of particular deprivation and regeneration of this area is essential. This is considered further below.

³⁵ <https://www.gov.uk/government/publications/advanced-manufacturing-plan/advanced-manufacturing-plan-html-version#:~:text=As%20part%20of%20our%20Advanced,removing%20barriers%20to%20boost%20competitivene ss.>



Updated Certainty of Imperative Needs

The Imperative Need to Decarbonise Energy Production

- 3.50 The earth's climate has been changing constantly over millions of years. Indeed, it is only ten thousand years since the majority of the UK land mass was covered by a series of thick ice sheets. In the current era we can understand the climate and the factors that influence it.
- 3.51 The climate is mainly influenced by the amount of energy coming from the sun, but also by factors such as the amount of greenhouse gases and aerosol propellant in the atmosphere. Recent human activity is changing the composition of the atmosphere and its properties. Since pre-industrial times (around 1750), carbon dioxide concentrations have increased by just over a third from 280 parts per million (ppm) to 420 ppm today, predominantly as a result of burning fossil fuels, deforestation and changes in land use. The concentration of other greenhouse gases such as methane and nitrous oxide are also rising.
- 3.52 There is compelling scientific evidence that the rising levels of greenhouse gases will have a warming effect on the earth's climate through increasing the amount of infrared radiation (heat energy) trapped in the atmosphere, "the greenhouse effect". In total the warming effect due to all greenhouse gases³⁶ emitted by human activities was equivalent to around 472 ppm of carbon dioxide in 2021. This concentration represented an increase of about 50 ppm over the preceding 10 years and was about 192 ppm more than in pre-industrial times³⁷.
- 3.53 The impact of climate change is to potentially threaten the basic elements of life for people around the world – access to water, food, health and use of land and the environment generally. One of the ways in which this would occur would be through rises in sea levels, inundating coastal areas around the world. Accordingly, the UK Government is a signatory to International commitments on climate change and national legislation has been developed that provides a statutory framework for the reduction of greenhouse gas emissions over the next few decades.
- 3.54 The Kyoto Protocol was developed to limit the growth of greenhouse gas emissions. Under the protocol, industrialised countries and those in transition to a market/industrialised economy agreed to limit or reduce their emissions of greenhouses gases. It came into force on 16 February 2005 and commits signatories, including the United Kingdom, to reduce or limit their greenhouse gas emissions to a specified target value relative to their 1990 emissions in the period 2008-2012.
- 3.55 The UK government has achieved its target reduction for emissions. Since the Kyoto Protocol, however, it has become evident that more significant action is required to limit climate change. Accordingly, legislation has been introduced in the European Parliament, and by the UK Government, to impose legal obligations that compel a transformation to a lower carbon economy.

³⁶ Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF₆), as defined in the Kyoto Protocol

³⁷ <https://www.eea.europa.eu/en/analysis/indicators/atmospheric-greenhouse-gas-concentrations>



- 3.56 The Climate Change Act 2008 is the basis for the UK's approach to tackling and responding to climate change. It requires that emissions of carbon dioxide and other greenhouse gases are reduced and that climate change risks are adapted to. The Act also establishes the framework to deliver on these requirements. The Act supports the UK's commitment to urgent international action to tackle climate change. Through the Act, the UK Government has set a target to significantly reduce UK greenhouse gas emissions by 2050 and a path to get there.
- 3.57 The Act also established the Committee on Climate Change (CCC) to ensure that emissions targets are evidence-based and independently assessed. The Act commits the UK Government by law to reducing greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050. The 100% target was based on advice from the CCC's 2019 report, '*Net Zero – The UK's contribution to stopping global warming.*'

The Need for Security of the UK Energy Supply

- 3.58 Whilst the development of renewable energy has been mainly driven by concerns over climate change, an additional important issue is the role of renewables in contributing to security of UK energy supplies. This is being driven by global shortages of oil supplies and increased oil demand from the developing economies (particularly China), depletion of national offshore gas reserves (particularly in the UK) and actions by the world's largest gas supplier – Russia.
- 3.59 In accordance with Section 172 of the Energy Act 2004 (as amended by Section 80 of the Energy Act 2011), The government and Ofgem is required, in every calendar year, to:
- “publish a report dealing, as regards both the short term and the long term, with the availability of electricity and gas for meeting the reasonable demands of consumers in Great Britain”.*
- 3.60 The most recent of such reports, '*Statutory Security of Supply Report*' (December 2023)³⁸, records that at the end of 2023, the UK had sufficient electricity capacity to meet the forecast winter's demand, with a margin of 4.4GW (about 7.4%) between supply and demand. This represented an increase on the 3.7GW (6.3%) that was expected at the end of 2022.
- 3.61 The Overarching National Policy Statement for Energy, EN-1 (November 2023), states that to ensure that there is sufficient electricity to meet demand, new electricity infrastructure will have to be built to replace output from retiring plants and to ensure we can meet increased demand. Even with major improvements in overall energy efficiency, and increased flexibility in the energy system, 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, with an illustrative range of 465-515TWh in 2035 and 610-800TWh in 2050.

The Need for Large Scale Wind Turbines

- 3.62 Energy costs need to be maintained as low as reasonably practicable. Turbine scaling increases energy capture while reducing general project infrastructure costs and landscape impacts, which ultimately reduce the cost of wind energy. The need for further / scaling-up

³⁸ <https://assets.publishing.service.gov.uk/media/6574ae1a33b7f2000db72144/statutory-security-supply-report-2023.pdf>



of offshore wind turbines is recognised in the range of UK government strategies, plans and policies outlined above, and is certain.

- 3.63 The importance of offshore wind and need for large capacity offshore turbines is reiterated in the UK Government *Offshore Wind Net Zero Investment Roadmap* (March 2023), noting that offshore wind is an established and proven part of the UK energy mix and is set to become even more important in the future. The Roadmap highlights there is a clear investment opportunity for the delivery of portside infrastructure to support the manufacturing, installation, operation and maintenance of fixed foundation offshore windfarms.
- 3.64 This need is also reflected in the Overarching National Policy Statement for Energy, EN-1 which states as part of delivering a secure, reliable, affordable, net zero consistent system in 2050, UK government announced in the British Energy Security Strategy³⁹ an ambition to deliver up to 50 gigawatts (GW) of offshore wind by 2030, including up to 5GW of floating wind.

The Need for Growth in UK Manufacturing

- 3.65 The need for a healthy manufacturing sector is recognised within a range of UK government documents.
- 3.66 As outlined above. Within the Advanced Manufacturing Plan (December 2023)⁴⁰ the government outlined a prioritisation of investing in the long-term future of manufacturing within the UK, whilst acknowledging a need to cooperate internationally in building supply chain resilience and needing to seek to reduce costs and remove barriers to competitiveness. With regard to offshore wind, the Plan identifies that *“Through the new £960 million Green Industries Growth Accelerator (‘the Accelerator’), we are supporting the development of green manufacturing industries, namely carbon capture, utilisation and storage (CCUS), hydrogen, electricity networks and offshore wind. We are establishing a H2 taskforce to assess the manufacturing opportunities provided by hydrogen technologies as a dual multipower option”*.
- 3.67 In summary, the offshore manufacturing sector has enormous potential to support economic recovery by creating financial and strategic value. It can help realise value from the country’s distinctive science and technology base and provide employment opportunities for people with a wide range of abilities and skills. The continued growth in manufacturing, especially within the Green Industries, is essential to the UK economy.

The Regeneration of the Humber Sub-Region

Employment

- 3.68 The Humber sub-region (consisting of North Lincolnshire, North East Lincolnshire, Kingston Upon Hull and East Riding of Yorkshire Local Authority Areas) is an area of relative deprivation. Whilst it has received significant investment over the previous decade, further

³⁹ <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

⁴⁰ <https://www.gov.uk/government/publications/advanced-manufacturing-plan/advanced-manufacturing-plan-html-version#:~:text=As%20part%20of%20our%20Advanced,removing%20barriers%20to%20boost%20competitiveness.>



continued public and private investment is needed to improve the overarching indices in this locality.

- 3.69 As shown within Tables 3-2 and Figure 3-2 below, whilst the levels of unemployment are below the national average (for 3 of the 4 authority areas), the levels of employment have stagnated over the previous 10 years and are below the UK average. This data is taken from the ONS Census 2021.
- 3.70 In addition to this employment data, Table 3-3 provides an indication of the average gross weekly pay at local authority level, which is again below the UK average. Finally, Table 3-4 provides a breakdown of major employment groups within these local authority areas. As can be noted, there are significant levels of employment within the manufacturing, retail (inc. vehicle repair), education, and human health and social work sectors. These are all above the UK averages for these sectors.

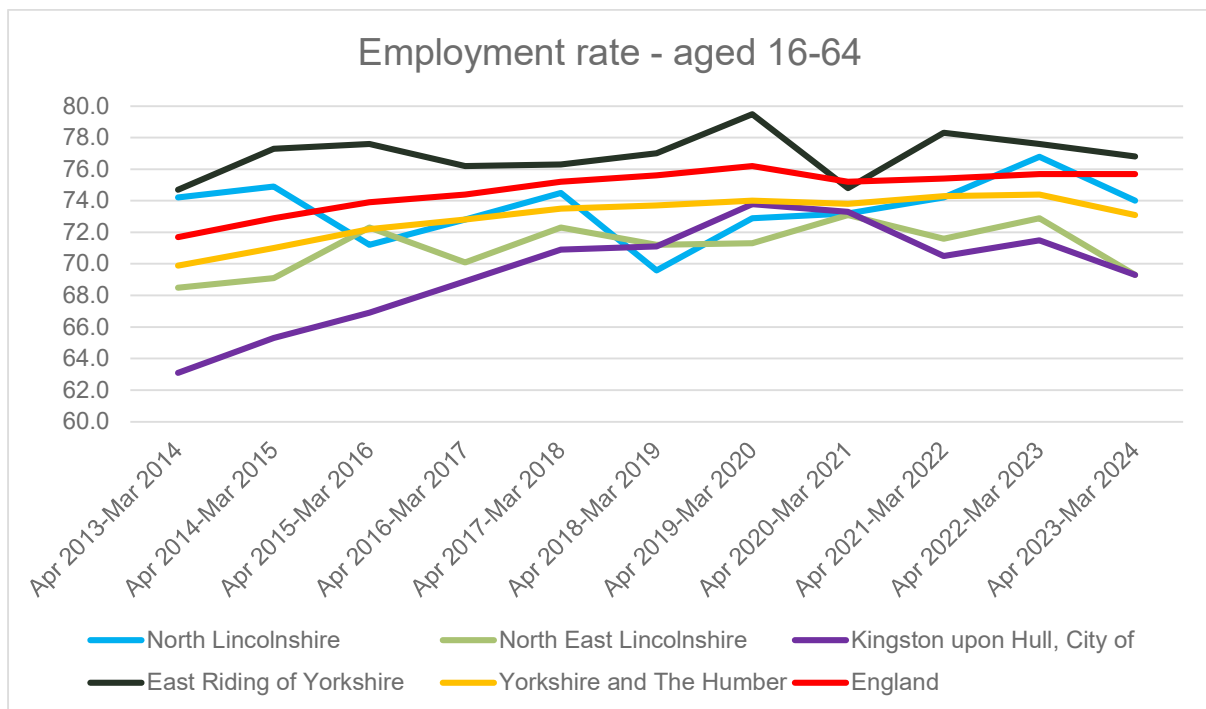
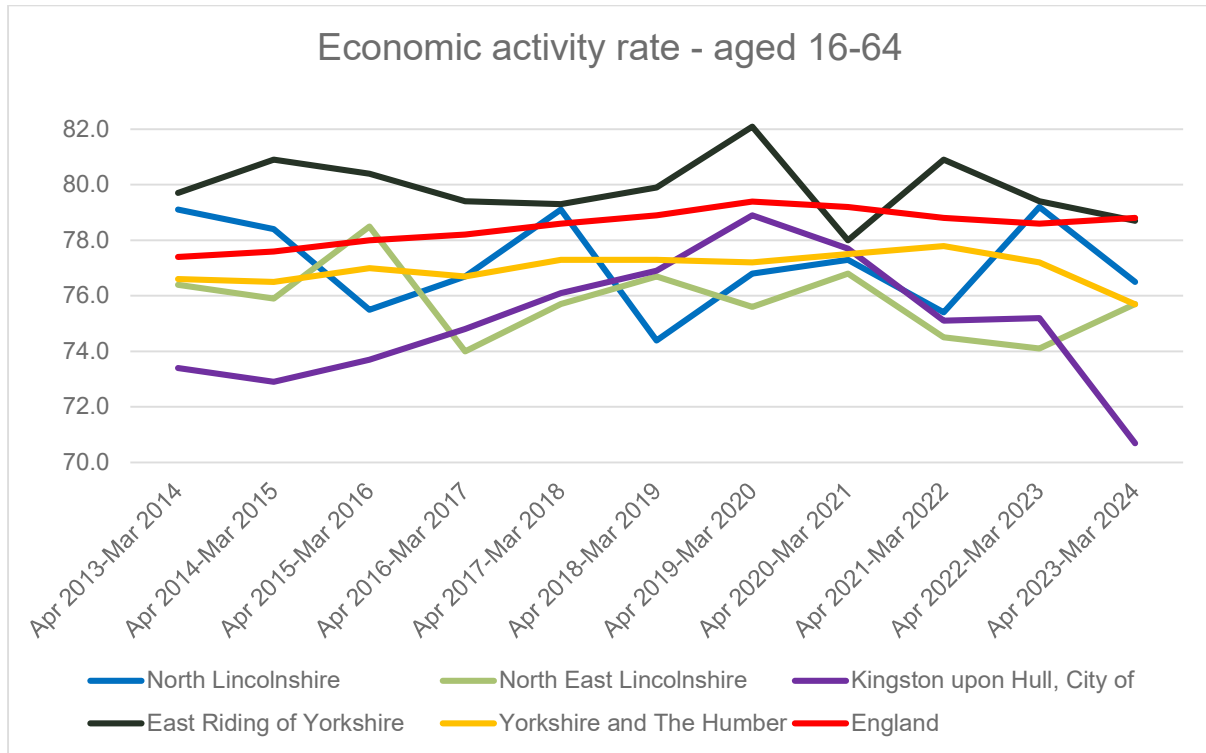
Table 3-2: Economic Activity Status (population 16+)⁴¹

Economic activity status	North Lincolnshire (District) %	North East Lincolnshire (District) %	Kingston upon Hull, City of (District) %	East Riding of Yorkshire (District) %	Yorkshire and The Humber (County) %	England (National) %
Economically active	55.9	55.4	57.4	54.9	56.2	58.6
Economically active: In employment	53.3	52.6	53.3	52.9	53.5	55.7
Economically inactive	42.3	42.7	40.1	43.5	41.4	39.1
Economically active: Unemployed	2.6	2.8	4.1	2.0	2.7	2.9
*excludes full time students						

⁴¹ NOMIS (2021) Economic Activity Rates. Available at: <https://www.nomisweb.co.uk/query/construct/components/stdListComponent.asp?menuopt=12&subcomp=100>.



Figure 3-2: Employment Change Graphs⁴²



⁴² NOMIS (2024) Annual Population Survey. Available at: <https://www.nomisweb.co.uk/query/construct/components/stdListComponent.asp?menuopt=12&subcomp=100>.



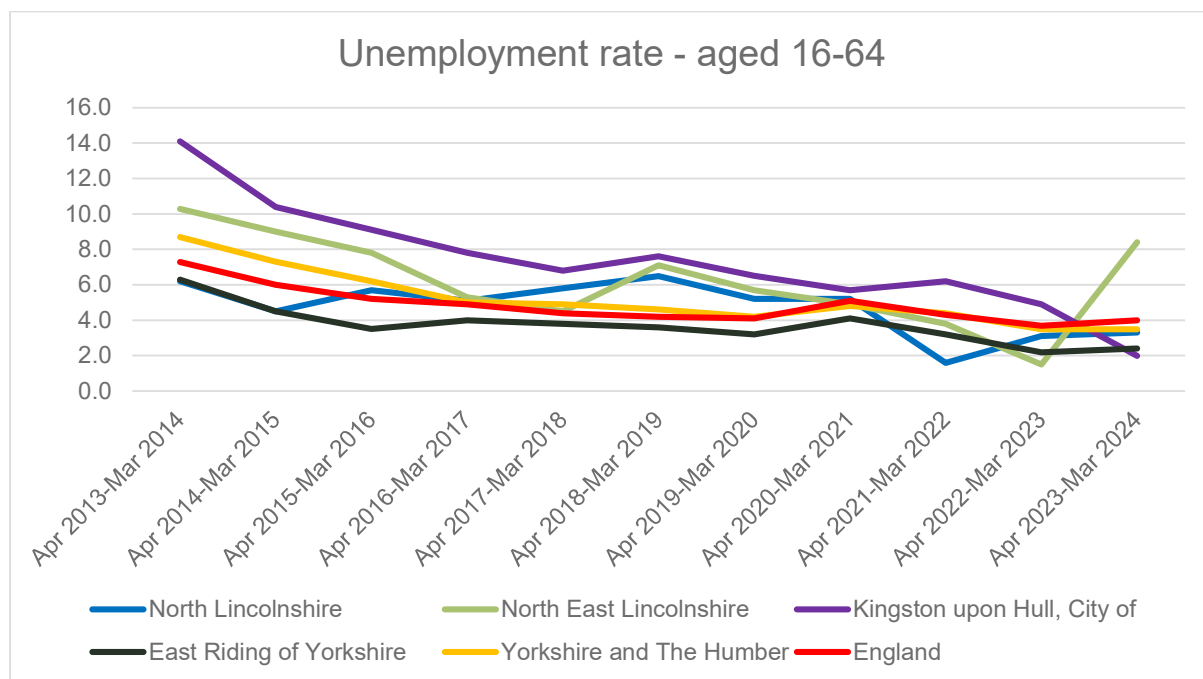


Table 3-3: Weekly Pay⁴³

	North Lincolnshire (District) £	North East Lincolnshire (District) £	Kingston upon Hull, City of (District) £	East Riding of Yorkshire (District) £	Yorkshire and The Humber (County) £	England (National) £
Mean gross weekly earnings	754.9	751.9	622.3	752.2	731.6	812.4

Table 3-4: SOC Major Employment Groups⁴⁴

	North Lincolnshire (District) %	North East Lincolnshire (District) %	Kingston upon Hull, City of (District) %	East Riding of Yorkshire (District) %	Yorkshire and The Humber (County) %	England (National) %
Agriculture, Forestry and fishing	1.7	0.5	0.5	3.0	1.0	0.8
Mining and quarrying	0.4	0.7	0.2	0.3	0.2	0.2
Manufacturing	17.4	13.9	15.2	9.9	9.4	7.3
Electricity, gas, steam and air conditioning supply	0.8	1.1	0.7	0.9	0.6	0.6

⁴³ NOMIS (2023) Earnings and hours worked. Available at: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/placeofresidencebylocalauthorityshetable8>.

⁴⁴ NOMIS (2021) Jobs by industry. Available at: <https://www.nomisweb.co.uk/query/construct/components/stdListComponent.asp?menuopt=12&subcomp=100>



	North Lincolnshire (District) %	North East Lincolnshire (District) %	Kingston upon Hull, City of (District) %	East Riding of Yorkshire (District) %	Yorkshire and The Humber (County) %	England (National) %
Water supply; Sewerage, Waste management and Remediation activities	0.8	0.6	0.7	0.7	0.8	0.7
Construction	8.3	8.4	9.2	9.5	8.6	8.7
Wholesale and retail trade; repair of motor vehicles and motorcycles	17.2	18.2	18.6	15.4	16.7	15.0
Transport and storage	6.7	8.0	5.0	4.4	5.2	5.0
Accommodation and food service activities	4.4	5.0	5.2	4.7	4.9	4.9
Information and communication	1.6	1.3	2.1	2.4	3.1	4.7
Financial and insurance activities	1.1	0.9	0.9	1.5	3.0	3.8
Real estate activities	1.0	1.0	0.9	1.1	1.2	1.6
Professional, scientific and technical activities	3.2	3.6	3.0	5.1	5.2	6.7
Administrative and support service activities	4.5	5.3	5.7	4.4	4.9	5.3
Public administration and defence; compulsory social security	5.1	4.1	5.0	7.2	5.9	5.8
Education	8.0	8.3	8.2	10.3	10.0	9.9
Human health and social work activities	14.3	15.3	15.4	14.7	15.3	14.6
Other	3.5	3.6	3.6	4.2	4.1	4.6

Area Status

3.71 The site lies within an area formally designated as the ‘Humber Assisted Area’ which was recognised by the European Commission as one that requires investment to raise employment levels and its manufacturing base. However, following Brexit, this status was formally removed in 2020.



- 3.72 Notwithstanding, the Humber region was identified for approximately £185 million worth of government funding for a range of projects⁴⁵, including investment in Humber Freeport (£15m), Towns Fund projects (£66m) and other major infrastructure work such as East Coast Cluster which is focusing on hydrogen and carbon capture projects, as well as improvements to the strategic road and rail networks.
- 3.73 There are plans for a Humber Economic Plan to be collectively developed by Combined Authorities within the region with an accompanying investment strategy.

English Indices of Deprivation

- 3.74 Indices of Multiple Deprivation⁴⁶ are published by government and are derived from a combination of income, employment, education, health, skills and training, barriers to housing and services, and crime to create an overall score of deprivation. They therefore provide a useful summary of many of the issues noted above. Below is the overall deprivation ranks for the authority regions assessed England for 2019 (where 1 is the most deprived and 317 is least deprived):
- North Lincolnshire ranked 120 out of 317 local authorities;
 - North East Lincolnshire ranked 66 out of 317 local authorities;
 - Kingston upon Hull, City of ranked 9 out of 317 local authorities; and
 - East Riding of Yorkshire ranked 217 out of 317 local authorities.
- 3.75 The full deprivation domains are provided in Table 3-5 below

Table 3-5: Deprivation Domains

Economic activity status	North Lincolnshire (District) %	North East Lincolnshire (District) %	Kingston upon Hull, City of (District) %	East Riding of Yorkshire (District) %
Overall rank	120	66		
Income	108	53	11	212
Employment	80	49	20	184
Education	76	41	4	198
Health	96	78	23	200
Crime	118	59	7	233
Barriers to Housing and Services	280	296	159	212
Living Environment	201	92	31	182

⁴⁵ <https://www.northernpowerhousepartnership.co.uk/devolution-in-action-shared-goals-in-the-humber/#:~:text=The%20area%20has%20seen%20significant,in%20the%20last%2018%20months.>

⁴⁶ UK Government (2019) English indices of deprivation 2019. Available at: <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>.



- 3.76 On the basis of the above, the need for action to address deprivation in the Humber sub-region is certain.

Updated Immediacy of the Needs

The Imperative to Decarbonise Energy Production

- 3.77 The need to address the overriding environmental impacts of climate change is urgent. The Stern Review, Executive Summary, states that *“The effects of our actions now on future changes in the climate have long lead times. What we do now can have only a limited effect on the climate over the next 40 or 50 years. On the other hand what we do in the next 10 or 20 years can have a profound effect on the climate in the second half of this century and in the next”* and *“the evidence gathered by the Review leads to a simple conclusion: the benefits of strong, early action considerably outweigh the costs”*.
- 3.78 This is reiterated throughout the white papers, strategies, plans and policies identified above. Indeed, it is usefully summarised within the Powering our Net Zero Future (December 2020) which emphatically states that *“We need to act urgently. The future impacts of climate change depend upon how much we can hold down the rising global temperature. To minimise the risk of dangerous climate change, the landmark Paris Agreement of 2015 aims to halt global warming at well below 2°C, while pursuing efforts to limit it to 1.5°C, increasing measures to adapt to climate change, and aligning financial systems to these goals”*. As such, the need for action on climate change is immediate.

Security of Energy Supply

- 3.79 The transition to low carbon means of energy production has commenced but needs to escalate rapidly. Offshore wind is now a substantially proven technology but investor confidence is imperative and the provision of sites that enable significant commercial development is an immediate need. Failure to provide such sites will constrain offshore development.
- 3.80 The immediacy of the imperative need to secure indigenous energy supplies is emphasised within the British Energy Security Strategy (April 2022) which identifies that *“... as the global economy reopened in the aftermath of the pandemic, the sudden surge in demand for everything from new cars to foreign holidays drove a massive spike in demand for oil and gas, dramatically increasing the price of these essential fuels.*

This has been compounded by Russia’s abhorrent and illegal invasion of Ukraine. As we are part of a global market, the price we pay for gas is set internationally. And President Putin has used this against us by restricting the supply of Russian gas to the European market, further pushing up prices. The vital sanctions imposed by the UK and its allies to support the Ukrainian people will also inevitably have an adverse effect on all economies.

As a result of all these factors, European gas prices soared by more than 200% last year and coal prices increased by more than 100%. This record rise in global energy prices has led to an unavoidable increase in the cost of living in the UK, as we use gas both to generate electricity, and to heat the majority of our 28 million homes.”



- 3.81 The British Energy Security Strategy continues by detailing that “*Accelerating the transition away from oil and gas then depends critically on how quickly we can roll out new renewables. The government’s ‘Ten point plan for a green industrial revolution’, together with the ‘Net zero strategy’ and this Energy Strategy, is driving an unprecedented £100 billion of private sector investment by 2030 into new British industries including offshore wind and supporting around 480,000 clean jobs by the end of the decade.*”
- 3.82 The transition to secure energy supplies cannot be delayed.

Need for Large Scale Offshore Wind Turbines

- 3.83 The importance of offshore wind and need for large capacity offshore turbines is reiterated in the UK Government *Offshore Wind Net Zero Investment Roadmap* (March 2023), noting that offshore wind is an established and proven part of the UK energy mix and is set to become even more important in the future. The Roadmap highlights there is a clear investment opportunity for the delivery of portside infrastructure to support the manufacturing, installation, operation and maintenance of fixed foundation offshore windfarms.
- 3.84 This need is also reflected in the Overarching National Policy Statement for Energy, EN-1 which states as part of delivering a secure, reliable, affordable, net zero consistent system in 2050, UK government announced in the British Energy Security Strategy⁴⁷ an ambition to deliver up to 50 gigawatts (GW) of offshore wind by 2030, including up to 5GW of floating wind.
- 3.85 The need for large scale wind turbines to be manufactured, especially within the right geographic location, is immediate.

The Need to Rebalance the UK Economy

- 3.86 The UK is emerging from the economic shock of the Covid pandemic as well as more recent shocks associated with energy supplies due to the conflict in Ukraine and an embargo on the importation of natural gas from Russia. Nevertheless, the UK has a clear opportunity to ensure growth and rebalance the UK economy through green energy manufacturing and low carbon technologies.
- 3.87 It is imperative that the UK promotes, in the immediate term, the development of manufacturing sites that serve emerging low carbon technology sectors to ensure growth in the green energy market. Manufacturers in the marine energy market need to have facilities constructed and operational in the immediate future to ensure the UK governments targets for both 2030 and 2050 are achievable and met; as such, the development site should be delivered in the immediate future to assist in achieving this.

Regeneration of the Humber Sub-Region

- 3.88 Whilst the Indices of Deprivation for the sub-region have improved since 2010 (albeit not directly comparable), in 2019 North East Lincolnshire was still ranked 66th out of 317 authority areas, whilst Hull is higher at 9th. Both of these authority areas are within

⁴⁷ <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>



commuting distance from the site, and would directly benefit from the proposals being brought forward.

- 3.89 The need for investment to improve socio-economic indicators in the City of Hull and Humberside region is demonstrably immediate.

Updated Duration of Public Need

The Need to Decarbonise the Means of Energy Production

- 3.90 The need to avoid the overriding environmental impacts of climate change is permanent. The Stern Review, Executive Summary, states that “*The effects of our actions now on future changes in the climate have long lead times. What we do now can have only a limited effect on the climate over the next 40 or 50 years. On the other hand what we do in the next 10 or 20 years can have a profound effect on the climate in the second half of this century and in the next*”.

Security of Energy Supply

- 3.91 The need for secure energy supplies will always exist but there is a pressing need to provide these in the immediate future.

The Need for Growth in UK Manufacturing

- 3.92 Economic growth is key to the UK economy with the government, with growth in the green economy becoming the emphasis over the past decade. In this respect, the following key documents have been published:

- Build Back Better – our plan for growth (Marth 2021);
- The Growth Plan (September 2022);
- Energy White Paper: Powering our Net Zero Future (December 2020)
- Net Zero Strategy: Build Back Greener (October 2021)
- Offshore Wind Net Zero Investment Roadmap (March 2023)⁴⁸
- Powering Up Britain: Net Zero Growth Plan (April 2023)⁴⁹

- 3.93 Economic growth, especially within the green economy, is a long-term objective and is an imperative for the UK.

Manufacturing of Large Scale Wind Turbines

- 3.94 It is imperative that the UK promotes, in the immediate term, the development of manufacturing sites that serve emerging low carbon technology sectors to ensure growth in the green energy market. Manufacturers in the marine energy market need to have facilities constructed and operational in the immediate future to ensure the UK governments targets

⁴⁸ <https://www.gov.uk/government/publications/offshore-wind-net-zero-investment-roadmap>

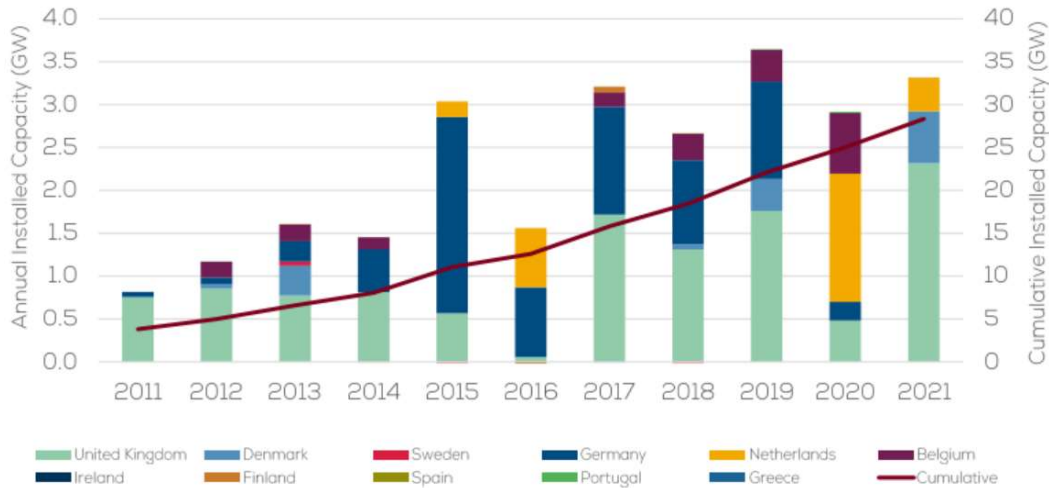
⁴⁹ <https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-net-zero-growth-plan#:~:text=In%20the%20Net%20Zero%20Strategy%2C%20government%20committed%20to%20have%20a,underpin%20our%20net%20zero%20ambitions.>



for both 2030 and 2050 are achievable and met; as such, the development site should be delivered in the immediate future to assist in achieving this.

3.95 Figure 3-3 shows the levels of offshore wind installations from the period 2010 to 2021, with the UK indicated as one of the main installers over the past decade.

Figure 3-3: Cumulative and Annual Offshore Wind Installations 2010-2021⁵⁰



3.96 Europe, including the UK, is going to account for almost 50% of the global offshore wind capacity by 2030. As illustrated by Figure 3-4 below, the offshore wind capacity installed each year between 2022 and 2026 will raise significantly on an annual basis, with a further significant rise in commissioned volume anticipated in 2029 and 2030.

Figure 3-4: World New Installations to 2030⁵¹



Source: H-BLIX based on information from WindEurope, GWEC 2021 [D1], GWEC 2022 [D2].

⁵⁰ <https://windeurope.org/policy/topics/offshore-wind-energy/>

⁵¹ <https://windeurope.org/wp-content/uploads/files/policy/topics/offshore/Offshore-wind-vessel-availability-until-2030-report-june-2022.pdf>



- 3.97 The UK has a clear long-term need for wind energy generation. Since offshore wind is more efficient than onshore, due to higher wind speeds across flat ocean surfaces and the ability to use much larger turbines, offshore can be the dominant wind sector in the future.
- 3.98 Taking into account the need for re-powering of obsolete turbines at the end of their service life (currently assumed to be 25 years), a long term need for the UK to produce up to an additional 5 GW of offshore turbines per year is a sound assumption; especially given the recent Institute for Public Policy Research report which identifies that the UK is falling behind its manufacturing targets for offshore wind to achieve the 2030 targets⁵². The UK could sustain a much higher level of manufacturing if it became a location of choice for offshore wind manufacturing and thus a net exporter of components.
- 3.99 In conclusion of the above the public need for AMEP is both immediate and long term.

Regeneration of the Humber Sub-Region

- 3.100 The regeneration of the Humber sub-region is a long term objective and will require major investment over many decades. The proposed project will make a significant contribution to this objective by creating ca 4,100 direct FTE jobs on the site related to manufacturing of offshore wind turbines and 5,000 direct FTE jobs in the Yorkshire and Humber region and elsewhere in the UK (excluding installation works). Further details are contained within the Environmental Statement.

Summary and Conclusion

The Balance of Interests

- 3.101 Where the balance of public interests weighs in favour of interests other than the strict protection of the National Site Network site, a decision maker may consent a project, even where the possibility of that project having an adverse effect on the integrity of a particular site cannot be excluded. This is normally only the case where the public interest is long term and where the interests are clearly in accordance with the fundamental policies of the State and for the benefit of society as a whole.

The Competing Imperative Reasons of Overriding Public Interest

- 3.102 The adverse effects on the National Site Network site are set out in the HRA.
- 3.103 As the project does not threaten a priority habitat or species Article 6(4) of the Habitats Directive explicitly permits the following categories of IROPI to be considered:
- human health;
 - public safety;
 - socio-economic;
 - beneficial consequences of primary importance for the environment, or,

⁵² <https://www.ippr.org/media-office/revealed-billions-at-stake-and-net-zero-goals-threatened-as-uk-falls-behind-in-the-race-for-wind-manufacturing>



- other imperative reasons that are subject to the opinion of the national government.

3.104 Fundamentally, the project will deliver socio-economic benefits to the UK generally and the Humber Estuary sub-region in particular by enabling the growth of the emerging renewable energy sector. It will also have beneficial consequences of primary importance for the environment by enabling Europe's necessary transition to low carbon energy production.

Beneficial Consequences of Primary Importance to the Environment

3.105 There is compelling scientific evidence that rising levels of greenhouse gases in the atmosphere will have a warming effect on the earth's climate through increasing the amount of infrared radiation (heat energy) trapped in the atmosphere, 'the greenhouse effect'. Potential effects include: rising sea levels which threaten major cities; irreversible damage to ecosystems; major declines in crop yields and water shortages. These potential impacts are beyond any reasonable scientific doubt.

3.106 The project would enable the development of a harbour facility that is designed to support the manufacture, export and installation of renewable energy components for the marine environment. This sector is essential to the delivery of the UK's renewable energy targets that aims to make energy production in Europe carbon neutral by 2050.

3.107 The need for transition to a low carbon economy is certain and is necessary in the immediate term. The project will assist in enabling this transition.

The Beneficial Effect of Large Scale OWT Components

3.108 Energy costs need to be maintained as low as reasonably practicable. Turbine scaling increases energy capture while reducing general project infrastructure costs (as well as landscape impacts) that ultimately reduce the cost of wind energy. The need for larger turbines is recognised in the UK government's Offshore Wind Net Zero Investment Roadmap.

3.109 The scale of development in the next decade and beyond represents a step change in offshore development to date. The UK government has established significant targets for offshore wind within the range of Net Zero documents identified above.

3.110 The project will provide facilities suitable for the manufacture and assembly of these large-scale offshore wind turbines.

The Need for Security of Energy Supplies

3.111 The Powering Up Britain (March 2023) document outlines that *"After decades of reliance on imported fossil fuels, the new department's mission is to replace them with cheaper, cleaner, domestic sources of energy. We will be powered by renewables including wind and solar, hydrogen, power with carbon capture, usage and storage (CCUS) and new nuclear plants - while recognising the vital role that UK oil and gas will play in the transition. This will make us much more energy independent, to protect us from volatile international energy markets, while underpinning our clean energy transition, so the UK becomes a net zero economy by 2050. It will also help us make sure the UK has among the cheapest wholesale electricity prices in Europe by 2035"*.



3.112 Powering Up Britain continues by outlining the need for an Energy Security Plan given the current geopolitical landscape, outlining that: *“Putin’s invasion exposed mainland Europe’s over-dependence on Russian gas, with implications for affordability and security. The UK cannot ever afford to be at the mercy of a malign actor like this. The British Energy Security Strategy was clear that the long-term solution is to address our underlying vulnerability to international fossil fuel prices by reducing our dependence on imported oil and gas. Our vision is to power the UK through affordable, home-grown, clean energy:*

- *ensuring Britain has among the cheapest wholesale electricity prices in Europe by 2035;*
- *moving towards energy independence through a potential doubling of Britain’s electricity generation capacity by the late 2030s;*
- *maximising the vital production of UK oil and gas as the North Sea basin declines; and*
- *capturing global early mover advantages and capitalising on the decarbonisation needs of the more than 90% of the global economy that are now signed up to net zero targets.*

3.113 The document continues by detailing there is in need for the UK to be more energy independent in the future, becoming more energy secure by:

- reducing energy demand and increasing the overall share of domestic energy production by building on the ambitions set out in the Net Zero Strategy and British Energy Security Strategy;
- ensuring that where the UK still needs to import energy, including through interconnectors, that those imports are built on strong relationships with trusted partners and allies and diversified sources of supply, which will also provide access to long term export markets to support the growth of clean energy industries; and
- building in resilience and mitigations to ensure that if there are disruptions to imports, consumers still have a reliable supply of energy.

3.114 The Energy Security Strategy emphasises that the growing proportion of the UK’s electricity coming from renewables reduces the country’s exposure to volatile fossil fuel markets and that without the renewables on the grid today, and the green levies that support them, energy bills would be higher than they are now.

3.115 As such, there is a critical need to build a British energy system that is much more self-sufficient. Nevertheless, the UK government is still acutely aware that there is a need to work with international partners to maintain a stable energy market and prices to protect UK consumers and reduce the use of fossil fuels globally and pivot toward clean, affordable energy.

3.116 Irrespective of the significant adverse environmental impacts of climate change, the UK needs to develop new, indigenous sources of energy, in order to secure energy supplies into the future. Current UK policy is that offshore wind energy must make a substantial contribution to the security of supply. The project will enable this objective to be realised



The Socio-Economic Benefit to the UK Economy

- 3.117 The UK is emerging from the economic shock of the Covid pandemic as well as more recent shocks associated with energy supplies due to the conflict in Ukraine and an embargo on the importation of natural gas from Russia. Nevertheless, the UK has a clear opportunity to ensure growth and rebalance the UK economy through green energy manufacturing and low carbon technologies.
- 3.118 The offshore manufacturing sector has enormous potential to support economic recovery by creating financial and strategic value. It can help realise value from the country's distinctive science and technology base and provide employment opportunities for people with a wide range of abilities and skills. The continued growth in manufacturing, especially within the Green Industries, is essential to the UK economy
- 3.119 Economic growth is a long-term objective and is an imperative for the UK. The UK must promote, in the immediate term, the development of manufacturing sites that serve emerging low carbon technology sectors. The project will provide a significant number of manufacturing jobs and has the potential to generate many more because of its cluster potential.

The Socio-Economic Benefit to the Humber Sub-Region

- 3.120 The English Indices of Deprivation 2019 (MHCLG⁵³) provide local authority district summaries. For the Index of Multiple Deprivation, which represents a combination of different individual deprivation indices, North East Lincolnshire was ranked 51st out of 151 authorities (where 1 is the most deprived and 151 the least deprived); North Lincolnshire was ranked 79th. For the corresponding employment index, North East Lincolnshire was ranked 35th and North Lincolnshire 54th.
- 3.121 Accordingly, there is a manifest need to address deprivation in the Humber sub-region by promoting investment in that area. The development of AMEP will have a significant positive impact on these criteria at the local level but will also benefit the Humber sub-region as a whole.
- 3.122 Much of the AMEP site now forms part Humber Freeport which, with effect from 19th November 2021, has been designated and recognised in law as one of a number of geographical areas where businesses can benefit from tax reliefs to bring investment, trade and jobs to regenerate regions across the country that need it most.
- 3.123 Based on 2011 values (noting they have not been updated to 2024 values), the following economic effects are estimated:
- The employment impact at the site will be 4,100 FTE jobs. The net additional local impact is 3,740 FTE jobs taking into account deadweight, leakage, displacement, and indirect and induced multiplier effects.

⁵³ <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>



- The UK-wide cumulative net additional impact is 10,600 FTE jobs. These jobs will generate significant net additional GVA in the local economy – estimated at £210 million, and in the national economy – estimated at £602.5 million.

3.124 As indicated above, these estimates are considered conservative and the GVA impact will potentially be higher due to higher GVA per job in the offshore wind energy sector.

3.125 The AMEP labour market impact is potentially significant, especially in the immediate vicinity of the development. It is expected that the workforce will have to come from a wider area, both North and North East Lincolnshire and from within the wider region of Yorkshire and the Humber. Based on the impact assessment of AMEP, it is evident that economic impacts can be expected to be highly positive:

- diversification of the manufacturing sector into new offshore wind technologies providing higher job security compared to traditional industries in decline;
- new jobs (4,100 direct jobs excluding installation related jobs) created directly at the site absorbing some of the potentially available pool of workers (unemployed and potentially economically active). These new jobs will attract highly skilled workers from other areas as well, thereby creating a critical mass of offshore wind professionals in the local area;
- AMEP will enable the development of an offshore wind manufacturing cluster in the Humber region as it will be cheaper and more efficient to co-locate businesses in the supply chain. A manufacturing cluster will help to develop offshore wind (and other marine renewables) technologies further;
- new offshore wind jobs will require highly qualified workers and AMEP represents opportunity to raise the skill level of local labour to ensure increased local participation;
- the supply chain for AMEP offshore wind manufacturers will be developing in the Yorkshire and the Humber region and beyond with signs of this process appearing recently with foundation manufacturers setting up facilities in Scunthorpe and Teesside;
- AMEP will also support 200 FTE jobs at a number of suppliers of goods, services, and works locally (i.e. within NL and NEL) and further 920 FTE jobs through spending of its and suppliers' employees in the local economy; and
- Wider impacts will include attraction of inward investment, growth of R&D in offshore wind in Yorkshire and the Humber, upskilling of the workforce, and others.

The Significance of the Competing Interests

3.126 There is a compelling case that there is an overriding public interest to:

- Decarbonise the means of energy production;
- Secure energy supplies from indigenous sources;
- Manufacture large scale offshore generators;
- Grow manufacturing in the UK; and
- Regenerate the Humber sub-region

3.127 These overriding public interests are contended to duly outweigh the loss of 45 hectares of a National Site Network site.



- 3.128 The project addresses these objectives by providing a new quay with direct access to a significant land parcel that is to be developed to support the manufacture of components for the offshore renewable energy sector. This is a sector that must grow to enable the delivery of European Energy policy. The sector has specific locational requirements that are realised with the least possible environmental harm.
- 3.129 The imperative overriding needs detailed above are both certain and immediate and the project will make a significant contribution towards them over a long period of time.





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