



Hornsea Project Four: Preliminary Environmental Information Report (PEIR)

Volume 3, Chapter 10: Socio-economics

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Annexes

Annex	Title
10.1	Socio-economics Technical Report

Glossary

Term	Definition
Commitment	A term used interchangeably with mitigation. Commitments are Embedded Mitigation Measures. Commitments are either Primary (Design) or Tertiary (Inherent) and embedded within the assessment at the relevant point in the EIA (e.g. at Scoping or PEIR). The purpose of Commitments is to reduce and/or eliminate Likely Significant Effects (LSE's), in EIA terms.
Cumulative effects	The combined effect of Hornsea Four in combination with the effects from a number of different projects, on the same single receptor/resource. Cumulative impacts are those that result from changes caused by other past, present or reasonably foreseeable actions together with Hornsea Project Four.
Design Envelope	A description of the range of possible elements that make up the Hornsea Project Four design options under consideration, as set out in detail in the project description. This envelope is used to define Hornsea Project Four for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is also often referred to as the "Rochdale Envelope" approach.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project(s) (NSIP).
Direct Employment and Gross Value Added	Employment and Gross Value Added which is associated with the first round of capital expenditure i.e. Hornsea Four's spend directly with prime contractors in each impact area.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive and EIA Regulations, including the publication of an Environmental Statement.
EIA Directive	European Union Directive 85/337/EEC, as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC and then codified by Directive 2011/92/EU of 13 December 2011 (as amended in 2014 by Directive 2014/52/EU).
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
Export cable corridor (ECC)	The specific corridor of seabed (seaward of Mean High Water Springs (MHWS)) and land (landward of MHWS) from the Hornsea Four array area to the Creyke Beck National Grid substation, within which the export cables will be located.
Full-Time Equivalent Jobs (FTE Jobs)	The total number of jobs after converting jobs with less than full-time hours and jobs with more than full-time hours into full-time hour jobs. Full-time

Term	Definition
	hours are assumed to be 37.5 hours per week (e.g. a job with 18.75 hours per week would be 0.5 Full-Time Equivalent jobs).
Gross Value Added (GVA)	The measure of the value of goods and services produced in an area, industry or sector of an economy. At the level of a firm, it is broadly equivalent to employment costs plus a measure of profit.
Hornsea Project Four offshore wind farm	The term covers all elements of the project (i.e. both the offshore and onshore). Hornsea Four infrastructure will include offshore generating stations (wind turbines), electrical export cables to landfall, and connection to the electricity transmission network. Hereafter referred to as Hornsea Four.
Indirect Employment and Gross Value Added	Employment and Gross Value Added which is associated with the suppliers of companies that supply goods and services as part of the supply chain of Hornsea Four.
Landfall	The generic term applied to the entire area between Mean Low Water Spring (MLWS) tide and the Transition Joint Bay (TJB) where the export cable will connect with the onshore ECC, inclusive of all construction works, including the offshore and onshore ECC, intertidal working area and landfall compound.
Local Enterprise Partnership (LEP)	Voluntary partnerships between local authorities and businesses set up in 2011 by the Department for Business, Innovation and Skills to help determine local economic priorities and lead economic growth and job creation within the local area.
Location Quotient (LQ)	The proportion of employment in a sector/industry in the Humber LEP area divided by that of the UK.
Maximum design scenario	The maximum design parameters of each Hornsea Four asset (both on and offshore) considered to be a worst case for any given assessment.
Mitigation	A term used interchangeably with Commitment(s) by Hornsea Four. Mitigation measures (Commitments) are embedded within the assessment at the relevant point in the EIA (e.g. at Scoping or PEIR).
Onshore export cables	Cables connecting the landfall first to the onshore substation and then on to the NGET substation at Creyke Beck.
Onshore substation / OnSS	Located as close as practical to the NGET substation at Creyke Beck and will include all necessary electrical plant to meet the requirements of the National Grid.
Orsted Hornsea Project Four Ltd.	The Applicant of proposed Hornsea Project Four offshore wind farm.
Person Years of Employment	The annual average number of employees multiplied by the number of years in the period. (e.g. 10 employees working for a build period of 2 years would equate to 20 person years of employment)
Planning Inspectorate (PINS)	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).

Acronyms

Acronym	Definition
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ERYC	East Riding Yorkshire Council
FTE	Full-Time Equivalent
GVA	Gross Value Added
I&E ID	Impacts and Effects Register ID - Volume 4, Annex 5.1
LEP	Local Enterprise Partnership
LQ	Location Quotient
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
ONS	Office for National Statistics
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
SoS	Secretary of State
UK	United Kingdom

10.1 Introduction

10.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents an assessment of the potential impacts of the Hornsea Project Four offshore wind farm (hereafter referred to as Hornsea Four) on Socio-economics. Specifically, this chapter considers the potential socio-economic impact of Hornsea Four during its construction, operation and maintenance, and decommissioning phases.

10.1.1.1 Orsted Hornsea Project Four Limited (the Applicant) is proposing to develop Hornsea Four. Hornsea Four will include both offshore and onshore infrastructure including offshore generating stations (wind turbines), electrical export cables to landfall and on to a connection to the electricity transmission network at National Grid Creyke Beck (please see [Volume 1, Chapter 4: Project Description](#) for full details on the Project Design).

10.1.1.2 This chapter summarises information contained within the technical report, which is included at [Volume 6, Annex 10.1: Socio-economics Technical Report](#).

10.2 Purpose

10.2.1.1 This PEIR presents the preliminary environmental information for Hornsea Four and sets out the findings of the EIA to date to support the pre-application consultation activities required under the Planning Act 2008.

10.2.1.2 The feedback from this consultation will be used to inform the final project design and the associated EIA, which will be reported in an Environmental Statement (ES) that will accompany the DCO application to PINS.

10.2.1.3 This PEIR chapter:

- Presents the existing environmental baseline established from desk studies, and discussions with Hornsea Four;
- Presents the potential environmental effects on socio-economics arising from Hornsea Four, based on the information gathered and the analysis and assessments undertaken to date;
- Identifies any assumptions and limitations encountered in compiling the environmental information; and
- Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

10.3 Planning and Policy Context

10.3.1.1 Planning policy on offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to socio-economics, is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1; DECC, 2011a), the NPS for Renewable Energy Infrastructure (EN-3, DECC, 2011b) and the NPS for Electricity Networks Infrastructure (EN-5, DECC, 2011c).

10.3.1.2 NPS EN-1 includes guidance on what matters are to be considered in the assessment. It should be noted that neither the National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) nor the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) provide specific guidance on socio-economic issues. As such, this assessment covers only policies relating to socio-economics from EN-1. Relevant EN1 provisions are summarised in [Table 10.1](#).

Table 10.1: Summary of NPS EN1 Policy relevant to Socio-economics.

Summary of NPS EN-1 provisions	How and where considered in the PEIR
<p><i>"Where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the ES" (EN-1 paragraph 5.12.2).</i></p>	<p>Socio-economic impacts of Hornsea Four that have been scoped into the assessment have been assessed for both the Humber Local Enterprise Partnership (LEP) area and the United Kingdom (UK) study areas in Section 10.11.</p>
<p><i>"This assessment should consider all relevant socio-economic impacts, which may include:</i></p> <ul style="list-style-type: none"> <i>• the creation of jobs and training opportunities;</i> <i>• the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;</i> <i>• effects on tourism;</i> <i>• the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and</i> <i>• cumulative effects – if development consent were to be granted to for a number of projects within a region and these were developed in a similar timeframe, there</i> 	<p>The creation of jobs and training opportunities have been assessed.</p> <p>Provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities was scoped out of the assessment of socio-economics as no adverse effects on the tourism economy were identified in other relevant chapters (e.g. Chapter 6: Land Use and Agriculture).</p> <p>Effects on tourism were scoped out of the socio-economics assessment. Further details are provided in Volume 4, Annex 5.1: Impacts Register</p> <p>Effects of employment have been assessed for construction and operation and maintenance phases.</p>

Summary of NPS EN-1 provisions	How and where considered in the PEIR
<p><i>could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region.</i></p> <p><i>Assessment should consider all relevant socio-economic effects, which may include the creation of jobs and training opportunities" (paragraph 5.12.3 of NPS EN-1).</i></p>	<p>Cumulative effects have been scoped out of the socio-economics assessment. Further details are provided in Volume 4, Annex 5.1: Impacts Register</p>
<p><i>"Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development's socio-economic impacts correlate with local planning policies." (paragraph 5.12.4 of NPS EN-1).</i></p>	<p>Local policy context has been considered for the assessment of socio-economics within the chapter (Table 10.4) and within Volume 6, Annex 10.1: Socio-economics Technical Report.</p>
<p><i>"Socio-economic impacts may be linked to other impacts, for example the visual impact of a development is considered in Section 5.9 but may also have an impact on tourism and local businesses." (EN-1 paragraph 5.12.5).</i></p>	<p>Consideration has been made to effects identified in other chapters that may be linked to socio-economics. For example, effects on the tourism economy where identified in other relevant chapters (e.g. Chapter 6: Land Use and Agriculture). Inter-related effects are identified included in Section 10.14.</p>

10.3.1.3 NPS EN-1 also highlights several factors relating to the determination of an application and in relation to mitigation. These are summarised in [Table 10.2](#).

Table 10.2: Summary of NPS EN-1 policy on decision making relevant to Socio-economics.

Summary of NPS EN-1 provisions	How and where considered in the PEIR
<p><i>"The IPC (hereafter the Secretary of State (SoS)) should have regard to the potential socio-economic effects of new energy infrastructure identified by the Applicant and from any other sources that PINS consider to be both relevant and important to its decision. The SoS may conclude that little weight is to be given to assertions of socio-economic effects not supported by evidence (particularly in view of the need for energy infrastructure as set out in this NPS)" (paragraph 5.12.6-5.12.7 of NPS EN-1).</i></p>	<p>Evidence for the assessment of socio-economics is provided throughout the chapter, notably in Section 10.11 .</p>
<p><i>"The SoS should consider any relevant positive provisions the Applicant has made or is proposing to make to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise as well as any options for phasing development in relation to socio-economic impacts. The SoS should consider whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development. For example, high quality design can improve the visual and environmental experience for visitors and the local community alike". (EN-1 paragraph 5.12.8 and 5.12.9).</i></p>	<p>The requirement for mitigation has been considered in the socio-economics assessment in Section 10.11.</p>

10.3.2 Further Planning and Policy Context Considerations

10.3.2.1 A number of further policy considerations have been made that are relevant to socio-economics. A summary of the key national policy considerations outside of NPS are provided in [Table 10.3](#), and considered further in [Volume 6, Annex 10.1: Socio-economics Technical Report](#).

Table 10.3: Summary of further national planning and policy considerations relevant to Socio-economics.

Policy Consideration	Relevance to Hornsea Four Socio-economics
UK Government, UK Industrial Strategy, White Paper, 2017	<ul style="list-style-type: none"> Emphasises importance of investment in low carbon infrastructure Identifies clean growth as one of the four grand challenges which includes clean energy Offshore Wind is also identified as an area where the UK has world-leading capabilities Aims to maximise the share of the global markets taken up by UK businesses in the sector
Sector Deal, Department for Business, Energy and Industrial Strategy, 2019	<ul style="list-style-type: none"> Commitment to increasing UK content to 60% of value associated with offshore wind farm activity by 2030 £250m industry investment in building a stronger UK supply chain to support productivity and increase competitiveness

10.3.2.2 There are also regional and local policy considerations that are relevant to Socio-economics, shown in [Table 10.4](#).

Table 10.4: Summary of local and regional policy considerations relevant to Socio-economics.

Policy Consideration	Relevance to Hornsea Four Socio-economics
Humber LEP, Strategic Economic Plan, 2014-2020	<ul style="list-style-type: none"> States that the Humber LEP plans to create over 13,000 jobs over the next 10 years. States that the Humber LEP has a long-term objective of closing the GVA gap with the rest of England States that renewable energy will play a central role in the economic development of the area. States that taking advantage of major growth opportunities such as renewable energy will be critical to realising the true potential of the Humber Estuary.
Humber LEP, The Humber's Blueprint for Industrial Strategy, 2018	<ul style="list-style-type: none"> States that the Humber LEP area will focus on four groups of related sectors: (Clean Energy; Energy-intensive and continuous process; Engineering and assembly; Enabling Services (ports and logistics, Digital and professional))
ERYC, East Riding Local Plan 2012-2029, Adopted April 2016	<ul style="list-style-type: none"> Policy EC1: Supporting the growth and diversification of the East Riding economy states that to strengthen and encourage growth of the East Riding economy, employment development will be supported where the proposal is of a scale suitable to the location.

10.4 Consultation

10.4.1.1 Consultation is a key part of the DCO application process. Consultation regarding socio-economics has been conducted through the Scoping Report (Ørsted, 2018). Full details of the project consultation process are presented within [Volume 1, Chapter 6: Consultation](#).

10.4.1.2 A summary of the key issues raised during consultation specific to socio-economics is outlined in [Table 10.5](#), together with how these issues have been considered in the production of this PEIR. A summary of consultation specific to socio-economics undertaken, which are applicable to Hornsea Four, are also set out below.

Table 10.5: Consultation Responses.

Consultee	Date, Document, Forum	Comment	Where addressed in the PEIR
PINS	Scoping Opinion, November 2018	<p>Employment and economic benefit derived from decommissioning</p> <p><i>"The Inspectorate agrees that this matter can be scoped out considering the nature and characteristics of the Proposed Development and the inability to undertake any meaningful assessment of employment, goods and services in the distant future."</i></p>	<p>Employment and economic benefit derived from decommissioning is scoped out of the EIA and not assessed in this chapter. Further details are provided in Volume 4, Annex 5.1: Impacts Register</p>
Public Health England	Scoping Opinion, November 2018	<p><i>"Mental health / community engagement – the scoping report does not identify details of engagement prior to and during the construction phase and impacts on mental health of the development.</i></p> <p><i>The ES should ensure adequate consultation with local communities and the local public health / health care system during the development of the ES for the assessment of baselines and potential impacts at local level on mental health.</i></p> <p><i>The attached appendix outlines generic areas that should be addressed by all promoters when preparing ES for inclusion with an NSIP submission. We are happy to assist and discuss proposals further in the light of this advice."</i></p>	<p>Pressures on social services such as health care, education and justice is scoped out of the EIA and not assessed in this chapter. Further details are provided in Volume 4, Annex 5.1: Impacts Register</p> <p>Consideration of health and wellbeing (including mental health) is included in in Volume 1, Chapter 4: EIA Methodology.</p>

Consultee	Date, Document, Forum	Comment	Where addressed in the PEIR
ERYC	Scoping opinion, January 2019	<i>"It is agreed that the Socio-Economic issues set out could be addressed by other EIA topics."</i>	Where appropriate (for example in identifying any potential for significant effects on the tourism economy in Chapter 6: Land Use and Agriculture), due care and attention has been made to ensure any issues that affect other EIA topics have been considered..
ERYC	Scoping opinion, January 2019	<i>"ERYC will consider the benefits of the project when submitting its Local Impact Report, and these should be set out clearly in a socio-economic impact assessment. The issues set out in question 3 can be scoped out, and the primary focus on the effects on employment and the economy as a whole."</i>	Employment and GVA impacts are the primary focus of this chapter. A summary of impacts and effects is set out in Table 10.25 .
ERYC	Scoping opinion, January 2019	<i>"No comments on socio-economic impact of decommissioning."</i>	Employment and economic benefit derived from decommissioning is scoped out of the EIA and not assessed in this chapter.

10.5 Study area

10.5.1.1 The Humber LEP area, which includes the districts of Hull, East Riding, North Lincolnshire and North East Lincolnshire, is selected as the local study impact area. Although the exact port locations for both construction and operations are currently unknown, the proximity of the Humber LEP area to the Hornsea Four array area and onshore export cable corridor (ECC), suggest this is the most appropriate local study area.

10.5.1.2 A national study area has also been identified, the UK (United Kingdom) given the scale of Hornsea Four, to assess national effects of Hornsea Four.



Figure 10.1: Socio-economic Study Areas for Hornsea Four, 2019.

10.6 Methodology to inform baseline

10.6.1 Desktop Study

10.6.1.1 A desk study was undertaken to obtain information on socio-economics for which further detail is provided in [Volume 6, Annex 10.1: Socio-economics Technical Report](#). Data were acquired within the Humber LEP and UK study areas through a detailed desktop review of existing studies and datasets.

10.6.1.2 The receptors assessed in this chapter were selected based on the professional judgement of the assessors. The receptors are as follows:

- Economic Activity;
- Employment; and
- Access to Employment.

10.6.1.3 The sources of information, for each receptor, shown in [Table 10.6](#) were consulted.

Table 10.6: Key Sources of Socio-economic Data.

Receptor	Indicator	Baseline Data Source
Economic Activity	Gross Value Added (GVA)	Office for National Statistics (ONS), Gross Value Added (balanced approach), 2018
	Offshore Wind Supply Chain	ONS, UK Business Counts, 2018
Employment	Employment	ONS, Business Register & Employment Survey, 2018
	Industry Breakdown	ONS, Business Register & Employment Survey, 2018
Access to Employment	Working Age Population	ONS, Mid-Year Population Estimates, 2016
	Economic Activity	ONS, Annual Population Survey, 2018
	Unemployment Rate	ONS, Annual Population Survey, 2018
	Claimant Count	ONS, Claimant Count, 2018
	Occupational Breakdown	ONS, Annual Population Survey, 2018
	Skills	ONS, Annual Population Survey, 2018

10.6.2 Site Specific Surveys

10.6.2.1 There were no site-specific surveys undertaken as none were required to inform the socio-economics assessment.

10.7 Baseline environment

10.7.1 Existing baseline

10.7.1.1 The baseline conditions are assessed for the local study area - the Humber LEP area. This is benchmarked against UK data as this forms the national study area. For some indicators it is not possible to obtain like for like data for the whole of the UK and as such Great Britain is used as a substitute.

10.7.1.2 This section provides a summary of baseline conditions which are most relevant to the assessment, with a more detailed baseline analysis provided in [Volume 6, Annex 10.1: Socio-economics Technical Report](#).

Labour Market Indicators

10.7.1.3 The unemployment rate, is higher in the Humber LEP area at 6% compared with 4% for the UK. There are 25,000 unemployed residents across the Humber LEP study area and as of December 2018, there were 17,700 claimants in the Humber LEP study area seeking employment.

10.7.1.4 Although out of date, 2013 data on occupations sought by claimants, indicates that residents seeking employment occupations relevant to wind farm construction accounted for between 30% and 40% of claimants.

Employment

10.7.1.5 The Humber LEP area employs around 392,000 people. This is shown in [Table 10.7](#).

Table 10.7: Employment and Employment Density, 2017.

	Humber LEP area	Great Britain
Total Employees (000s)	392	29,268
Total Full-Time Equivalent (FTE) Jobs (000s)	327	24,753
Employment Density (Jobs per 1,000 working age residents)	674	723

Source: ONS, Business Register and Employment Survey, 2017; ONS, Mid-Year Population Estimate, 2017

10.7.1.6 Employment levels are more variable in the Humber LEP area than Great Britain. The Humber LEP area was slow to recover from the 2008/09 recession, compared with Great Britain but then outpaced Great Britain's employment growth in three of the last four years, more than doubling the Great Britain average in 2017. In total from 2010 to 2017, employment has risen by 18,200 FTE employees (6%).

Gross Value Added and Earnings

10.7.1.7 As shown in **Table 10.8**, the Humber LEP area contributed £18.6 billion in GVA to the UK economy in 2017 which accounts for around 1% of UK GVA. GVA per head of population is around £20,000 in the Humber LEP area which is 27% below the UK average of £27,600).

Table 10.8 GVA and GVA per Head, 2017.

Study Area	GVA (£ billion)	GVA per Head (£)
Humber LEP area	18.6	20,000
UK	1,819.8	27,600

Source: ONS, Gross Value Added (balance), 2017

Deprivation

10.7.1.8 According to the 2015 Index of Multiple Deprivation from the ONS, the Humber LEP area has a relatively high number of areas with the highest levels of deprivation. Around 22% of neighbourhoods (Lower Super Output Areas) within the Humber LEP area are in the highest 10% in terms of deprivation across England.

10.7.2 Predicted future baseline

10.7.2.1 It is not common practice for socio-economic impact assessments to provide a future baseline scenario to inform impacts of development activity on socio-economic receptors. This is largely because of the significant uncertainties which exist in projecting future economic conditions in local areas. There are various commercially available models which provide quantitative estimates of future employment and labour market conditions. These forecasts are predominantly based on data on past trends which is used, in conjunction with other factors, to estimate potential employment and sector growth rates nationally. These national projections are then apportioned to local areas, often using concentrations of sectoral employment locally as the basis for the local estimates. This can make these models challenging to interpret at a local level and can limit the usefulness of economic forecasting models for the assessment of impacts of specific developments on socio-economic receptors.

10.7.3 Data Limitations

10.7.3.1 The most up to date information available has been used in the preparation of the baseline; however, there is often a lag in publishing national datasets, meaning there is possibility that some information may be slightly out of date. For example, employment data from the Office for National Statistics usually has a one to two year lag but is still the best representation of employment available. These data limitations will not have a material effect on the predictability or accuracy of the impact assessment.

- 10.7.3.2 Since January 2013, the number of people claiming Job Seeker's Allowance and Universal Credit have been combined. The new dataset combining Universal Credit and Job Seeker's Allowance means it is no longer possible to get an accurate indication of the number of people seeking work in occupations related to construction and operation and maintenance (O&M) phases of offshore wind farm development. This has implications for the level of quantitative analysis which can be undertaken in the baseline section and subsequent assessment.
- 10.7.3.3 There are data challenges with disaggregating GVA data by sector to measure the impact of Hornsea Four in the context of the renewable energy sector. The data is available by broad Standard Industrial Classification (SIC) code level, which does not lend itself to defining a renewable energy sector, especially below national geographical level. This means the assessment of GVA impacts is undertaken against a whole economy baseline. Quantitative definitions of magnitude are adjusted accordingly for GVA receptors to reflect the breadth of the measure.
- 10.7.3.4 When submitted, the DCO application will not include development activities at potential construction ports. Where necessary, these will be subject to separate consent(s) such as planning permission or a Harbour Revision Order. The Applicant is currently considering ports suitable for the construction base for the offshore elements of the project. A wide area across the southern North Sea is being considered including ports such as Grimsby, Immingham, Hull, Felixstowe and Teesside. Other ports in the area may also be suitable for the construction port and selection will be dependent upon consent, a Contract for Difference (CfD) and on the findings of further technical studies and commercial negotiations. For the socio-economics assessment, it has been assumed that the port will be located within the Humber LEP area as this is the closest LEP area in proximity to all elements of Hornsea Four. Scenarios with alternative non-Humber LEP area ports have also been included to account for the uncertainty.
- 10.7.3.5 Although the number of turbines is set out in [Volume 1, Chapter 4: Project Description](#) (180), the potential future capacity of Hornsea Four is not known. As such, this has been based on industry averages of 10 MW per turbine from the 2019 Crown Estate Guide to an Offshore Wind Farm. In the absence of a precise figure, this is the most up to date and robust estimate of turbine capacity and enables an appropriate estimate of impacts to be provided.
- 10.7.3.6 It is noted that should fewer turbines be developed than the 180 maximum design scenario, any impacts and associated effects would be reduced in significance. The effects would not however be reduced to 'adverse' and would either remain 'beneficial' or at worst, 'not significant'.

- 10.7.3.7 The chapter considers a UK study area to enable the national significance of socio-economic effects to be assessed. It should be noted that the effects of Hornsea Four in the context of the UK study area appear low, however, these have been included in the assessment to demonstrate the absolute scale of potential effects for the UK. Where data is not available at a UK level (namely the ONS Business Register and Employment Survey), Great Britain is used as an alternative measure.
- 10.7.3.8 **Volume 1, Chapter 4: Project Description** provides an overview of the estimated construction period timetable. The construction activity for all elements of the construction phase is expected to span a period of up to 54 months (4.5 years), with the earliest possible construction date of August 2023. The estimated construction period timetable shows where there are likely to be peaks and troughs in activity, related to specific aspects of Hornsea Four, both Offshore and Onshore. At this stage, it is not possible to robustly model the scale of workforce requirements at different points in time, and as such, the assessment of socio-economic effects assumes a uniform level of annual employment across all years (total employment divided by the construction period). Although there are likely to be peaks and troughs throughout the period, this provides the best estimate of workforce requirements and enables a robust assessment of effects to be undertaken.

10.8 Project basis for assessment

10.8.1 Impact register and impacts “scoped out”

10.8.1.1 Based on the baseline environment, the project description outlined in [Volume 1, Chapter 4: Project Description](#) and the commitments in [Volume 4, Annex 5.2: Commitments Register](#), a number of impacts have been “scoped out” of the PEIR assessment for socio-economics. These impacts are outlined, together with a justification for scoping them out, in [Table 10.9](#). Further detail is provided in the Impacts Register in [Volume 4, Annex 5.1: Impacts Register](#).

10.8.1.2 Please note that the term “scoped out” relates to the Likely Significant Effect (LSE) in EIA terms and not “scoped out” of the EIA process *per se*. All impacts “scoped out” of LSE are assessed for magnitude, sensitivity of the receiving receptor and conclude an EIA significance in the I&E Register (see [Volume 4, Annex 5.1](#)). This approach is aligned with the Hornsea Four Proportionate approach to EIA (see [Volume 1, Chapter 5: EIA Methodology](#)).

Table 10.9: Socio-economic impact register.

Project activity and impact	Likely significance of effect	Approach to assessment	Justification
Decommissioning Phase Impacts on employment and GVA (SE-D-7)	No likely significant effect	Scoped Out	"The Inspectorate agrees that employment and economic benefit derived from decommissioning can be scoped out considering the nature and characteristics of Hornsea Four and the inability to undertake any meaningful assessment of employment, goods and services in the distant future." (PINS Scoping Opinion, November 2016, ID:4.18.2)
Cumulative Impacts relevant to Socio-economics (SE-A-8)	No Likely Significant Effects	Scoped Out	Absence of specific response from PINS during EIA scoping, it is assumed agreement to scope out has been achieved. Hornsea Four will be set against a background of a variety of economic development activity and in a regional context will likely provide some economic and employment benefits. The socio-economic assessment will consider the contribution of Hornsea Four to the local, regional and national economy to the extent practicable. However, it is not proposed that positive cumulative effects with other plans and proposals are specifically assessed. This is because such benefits are a desired outcome of local, regional and national policies for economic development and Hornsea Four will

Project activity and impact	Likely significance of effect	Approach to assessment	Justification
			simply be adding to the benefits provided from other planned development.
Tourism Impacts (SE-A-9)	No Likely Significant Effects	Scoped Out	<p>Absence of specific response from PINS during EIA scoping, it is assumed agreement to scope out has been achieved.</p> <p>The proposed offshore infrastructure is not close to concentrations of onshore or offshore tourism and leisure activity. Likewise, the onshore ECC and associated works are not located close to major tourism centres or tourism and leisure assets.</p> <p>In the absence of significant effects to the tourism economy identified in other chapters (e.g. Chapter 6: Land Use and Agriculture), it is not necessary to assess under Socio-economics. Inter-related effects are identified in Section 10.14.</p>
Adequate Services and Infrastructure – Pressures on social services such as health care, education and justice (SE-A-10)	No Likely Significant Effects	Scoped Out	<p>Absence of specific response from PINS during EIA scoping, it is assumed agreement to scope out has been achieved.</p> <p>While there will be a large construction workforce, much of it will be drawn from local and regional resources and no single community social service will be exposed to large-scale demand from workers.</p>
Adequate Services and Infrastructure – Housing Pressures – eg. affordability, availability and appropriateness (SE-A-11)	No Likely Significant Effects	Scoped Out	<p>Absence of specific response from PINS during EIA scoping, it is assumed agreement to scope out has been achieved.</p> <p>While there will be a large construction workforce, much of it will be drawn from local and regional resources and demand for temporary accommodation by those hired from outside the region will be distributed over a relatively wide area and unlikely to compete with others (e.g. domestic or tourism) for availability.</p>

Notes:

Grey - Potential impact is scoped out and both PINS and Hornsea Four agree.

10.8.2 Commitments

10.8.2.1 Hornsea Four has made several commitments (primary design principles inherent as part of the project, installation techniques and engineering designs/modifications as part of their pre-application phase), to avoid a number of impacts or reduce impacts as far as possible. Further commitments (adoption of best practice guidance) are embedded as an inherent aspect of the EIA process (see [Volume 4, Annex 5.2: Commitments Register](#)).

10.8.2.2 As part of the Hornsea Four design process a number of designed-in measures have been proposed. Relevant measures described in other sections of this PEIR (e.g. for commercial fisheries, traffic and transport, land use) will serve to reduce the potential for adverse impacts on socio-economic aspects and are not repeated here.

10.8.2.3 At this stage it is not practicable to embed mitigation to provide economic benefits (i.e. enhancement) due to the early stages of Hornsea Four and commercial and legal considerations; however, Hornsea Four will endeavour to enhance the benefits available to the local and national economies to the extent practicable through the following general measures:

- identify opportunities for companies based or operating in the Yorkshire and Humber region to access the project's supply chain; and
- work with local partners and seek to maximise the ability of local people to access employment opportunities associated with the construction and operation of Hornsea Four.

10.8.2.4 It is not considered appropriate or practicable to secure commitments to provide benefits through DCO requirements given the uncertainty over how goods, services and employment will be procured. However, once the scale of economic opportunity likely to arise locally is apparent, Hornsea Four will work with the Humber Local Enterprise Partnership (LEP) and wider stakeholders to identify skills and supply chain needs in the local area and maximise local economic benefit.

10.8.2.5 Based on the nature and scale of local economic opportunities, Hornsea Four will explore whether there is a case for targeted actions to develop labour market capability.

10.9 Maximum Design Scenario

10.9.1.1 A number of Maximum Design Scenarios (MDSs) have been used as a basis for the impact assessment on socio-economics. The MDs are presented in [Table 10.10](#).

Table 10.10 Maximum design scenario for impacts on Socio-economics.

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
<i>Construction</i>			
Contributions to economic activity through construction activities (SE-C-1)	None	Maximum Design Scenario not appropriate for employment and GVA related impacts in this case	Effects in relation to employment and GVA generated as a result of construction activity are all beneficial, so a maximum design scenario is not appropriate here. Aside from the size of the workforce, detailed aspects of scheme design do not have a substantial bearing on the economic impact assessment. Due to the early stages of Hornsea Four, the assessment draws mainly on assumptions from industry evidence rather than specific design factors. Non-design factors (such as the selection of ports, procurement approach and the geography of the development's supply chain) are more important factors in determining the overall level of potential economic impact. Three construction scenarios have been assessed which test the sensitivity of impacts with regard to the assumptions around local and UK based benefits.
Contributions to Employment through construction activities (SE-C-2)			
Enabling local residents to access employment opportunities through construction activities (SE-C-3)			
<i>Operation</i>			
Contributions to economic activity through operation and maintenance activities (SE-O-4)	None	Maximum Design Scenario not appropriate for employment and GVA related impacts in this case	Effects in relation to employment and GVA generated as a result of operation and maintenance activity are all beneficial, so a maximum design scenario is not appropriate here. Aside from the size of the workforce, detailed aspects of scheme design do not have a substantial bearing on the economic impact assessment. Due to the early stages of Hornsea Four, the assessment draws mainly on assumptions from industry evidence rather than specific design factors. Non-design factors (such as the selection of ports,
Contributions to Employment through operation and maintenance activities (SE-O-5)			

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
Enabling local residents to access employment opportunities through operation and maintenance activities (SE-O-6)			procurement approach and the geography of the development's supply chain) are more important factors in determining the overall level of potential economic impact. Two O&M scenarios have been assessed which test the sensitivity of impacts with regard to the assumptions around local and UK based benefits.
<i>Decommissioning</i>			
Scoped out of assessment.			

10.10 Assessment methodology

10.10.1.1 An outline of the assessment methodology is presented below. A more detailed description of the assessment methodology is presented in [Volume 6, Annex 10.1: Socio-economics Technical Report](#).

10.10.2 Impact assessment criteria

10.10.2.1 The criteria for determining the significance of effects is a two-stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts. This section describes the criteria applied in this chapter to assign values to the sensitivity of receptors and the magnitude of potential impacts. The terms used to define sensitivity and magnitude are based on those used in the DMRB methodology, which is described in further detail in [Volume 1, Chapter 5: EIA Methodology](#). The definitions provided in this chapter have been reworded to improve their relevance to socio-economics, but the criteria for defining sensitivity and magnitude used in this chapter are consistent with that of the DMRB. The reworded definitions are based on professional experience of the assessors. The criteria for defining sensitivity in this chapter are outlined in [Table 10.11](#).

Table 10.11: Definition of terms relating to receptor sensitivity.

Sensitivity	Definition used in this chapter
Very High	<p>The receptor is identified as the highest-ranking policy priority (as a result of economic potential and/or need).</p> <p>There is evidence of severe socio-economic challenges, underperformance and vulnerability for the receptor in the study area.</p>
High	<p>The receptor is identified as a policy priority (as a result of economic potential and/or need).</p> <p>There is evidence of major socio-economic challenges or underperformance and vulnerability for the receptor in the study area.</p>
Medium	<p>The receptor is not identified as a policy priority (as a result of economic potential and/or need).</p>
Low	<p>The receptor is not identified as a policy priority (as a result of economic potential and/or need).</p> <p>There is evidence that the receptor is resilient and no particular weaknesses or challenges for the receptor in the study area.</p>

10.10.2.2 The criteria for defining magnitude in this chapter are outlined in [Table 10.12](#) and supported by numerical thresholds in [Table 10.13](#). The numerical thresholds are based on the professional judgment of the assessors.

Table 10.12 Definition of terms relating to magnitude of an impact.

Magnitude of impact	Definition used in this chapter
Major	Large change to baseline conditions in terms of absolute and/or percentage change
Moderate	Moderate change in baseline conditions which is noticeable in terms of absolute and/or percentage change
Minor	Minor shift away from baseline which would be noticeable in terms of absolute and/or percentage change in baseline conditions
Negligible	Very slight change from baseline condition
No change	No change from baseline condition.

Table 10.13 Numerical criteria for assessment magnitude.

Phase	No change	Negligible	Minor	Moderate	Major
GVA impacts					
Construction	0%	Up to 0.1%	0.1 to 0.5%	0.5 to 1%	1% +
O&M	0%	Up to 0.1%	0.1 to 0.5%	0.5 to 1%	1% +
Employment impacts					
Construction	0%	Up to 0.1%	0.1 to 0.5%	0.5 to 1%	1% +
O&M	0%	Up to 0.1%	0.1 to 0.5%	0.5 to 1%	1% +
Access to Employment					
Construction	0%	Up to 1%	1 to 5%	5 to 20%	20%+
O&M	0%	Up to 1%	1 to 5%	5 to 20%	20%+

10.10.2.3 The significance of the effect upon Socio-economics is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The method employed for this assessment is presented in [Table 10.14](#). Where a range of significance of effect is presented in [Table 10.14](#), the final assessment for each effect is based upon expert judgement.

10.10.2.4 For the purposes of this assessment, any effects with a significance level of minor or less have been concluded to be not significant in terms of the EIA Regulations.

10.10.2.5 The matrix is based on the DMRB methodology in [Volume 1, Chapter 5. EIA Methodology](#).

Table 10.14 Matrix used for the assessment of the significance of the effect.

		Magnitude of Impact/Degree of Change			
		Negligible	Minor	Moderate	Major
Value, Importance, Sensitivity	Low	Not Significant	Not Significant or Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant) or Moderate (Significant)
	Medium	Not Significant	Minor (Not Significant)	Moderate (Significant)	Moderate (Significant) or Major (Significant)
	High	Not Significant	Minor (Not Significant) or Moderate (Significant)	Moderate (Significant) or Major (Significant)	Major (Significant) or Substantial (Significant)
	Very High	Not Significant	Moderate (Significant) or Major (Significant)	Major (Significant) or Substantial (Significant)	Substantial (Significant)

10.11 Impact assessment

10.11.1 Construction

10.11.1.1 The impacts of the construction of Hornsea Four have been assessed on Socio-economics. The environmental impacts arising from the construction of Hornsea Four are listed in **Table 10.10** along with the maximum design scenario against which each construction phase impact has been assessed.

10.11.1.2 A description of the potential effect on Socio-economic receptors caused by each identified impact is given below.

Contributions to Economic Activity through Construction Activities (SE-C-1)

Magnitude of impact

10.11.1.3 The impacts on GVA creation under each scenario are summarised for each study area in **Table 10.15**:

Table 10.15 Summary of GVA Impacts.

Study Area	Scenario	Direct GVA (£ million)	Indirect GVA (£ million)	Total GVA (£ million)	Annual GVA (£ million)
Humber LEP area	Humber Port	£295.6	£36.8	£332.4	73.9
	Non-Humber UK Port	£55.9	£7.4	£63.3	14.1

Study Area	Scenario	Direct GVA (£ million)	Indirect GVA (£ million)	Total GVA (£ million)	Annual GVA (£ million)
	Non-UK Port	£8.2	£0.9	£9.0	2.0
UK	Humber Port	£732.0	£602.5	£1,334.5	296.6
	Non-Humber UK Port	£732.0	£602.5	£1,334.5	296.6
	Non-UK Port	£81.5	£53.2	£134.7	29.9

Note: Figures may not sum due to rounding; build period is estimated to be 4.5 years

10.11.1.4 **Table 10.16** sets the impacts against the baseline indicator across the range of scenarios for each study area:

Table 10.16 GVA Impacts in Context of Baseline Indicator.

Study Area	Scenario	Annual GVA Impact (£ million)	Baseline GVA (£ million)	Impact as % of Baseline
Humber LEP area	Humber Port	73.9	18,612	0.40%
	Non-Humber UK Port	14.1		0.08%
	Non-UK Port	2.0		0.01%
UK	Humber Port	296.6	1,819,754	0.02%
	Non-Humber UK Port	296.6		0.02%
	Non-UK Port	29.9		0.00%

Note: Figures may not sum due to rounding

10.11.1.5 For the Humber LEP study area, the impact is predicted to be of local spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be **minor** for the Humber Port scenario and **negligible** for all other scenarios. As such, only the Humber Port scenario is considered further.

10.11.1.6 For the UK study area, the impact is predicted to be of national spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible** for all scenarios. As such, these are not considered further.

Sensitivity of the receptor

10.11.1.7 Generating Economic Activity is identified as a policy priority within the Humber LEP Strategic Economic Plan 2014-20, and GVA per head is significantly lower in the Humber LEP area than the UK average, evidencing a major socio-economic challenge. The sensitivity of the receptor is therefore considered to be **high**.

Significance of the effect

10.11.1.8 For the Humber LEP area under the Humber Port scenario, it is predicted that the sensitivity of the receptor is **high** and the magnitude is **minor**. The effect is of **minor beneficial** significance, which is not significant in EIA terms.

10.11.1.9 For all other scenarios, the magnitude is predicted to be negligible and therefore the effect is not significant in EIA terms.

Contributions to Employment through Construction Activities (SE-C-2)

Magnitude of impact

10.11.1.10 The impacts on employment creation under each scenario are summarised for each study area in [Table 10.17](#).

Table 10.17 Summary of Employment Impacts.

Study Area	Scenario	Direct Employment (Person Years Employment)	Indirect Employment (Person Years Employment)	Total Employment (Person Years Employment)
Humber LEP area	Humber Port	5,900	1,100	7,000
	Non-Humber UK Port	900	200	1,100
	Non-UK Port	200	<100	300
UK	Humber Port	13,900	11,200	25,100
	Non-Humber UK Port	13,900	11,200	25,100
	Non-UK Port	2,500	1,200	3,600

Note: Figures may not sum due to rounding

10.11.1.11 **Table 10.18** sets the impacts against the baseline indicator across the range of scenarios for each study area:

Table 10.18 Employment Impacts in Context of Baseline Indicator.

Study Area	Scenario	Total Employment Impact (FTEs)	Average Annual Employment	Baseline Employment (FTEs)	Impact as % of Baseline
Humber LEP area	Humber Port	7,000	1,600	327,000	0.49%
	Non-Humber UK Port	1,100	200		0.06%
	Non-UK Port	300	100		0.03%
UK	Humber Port	25,100	5,600	24,752,500	0.02%
	Non-Humber UK Port	25,100	5,600		0.02%
	Non-UK Port	3,600	800		0.00%

Note: Figures may not sum due to rounding; Build period is assumed to be 4.5 years

10.11.1.12 For the Humber LEP study area, the impact is predicted to be of local spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be **minor** for the Humber Port scenario and **negligible** for all other scenarios. As such, only the Humber Port scenario is considered further.

10.11.1.13 For the UK study area, the impact is predicted to be of national spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible** for all scenarios. As such, these are not considered further.

Sensitivity of the receptor

10.11.1.14 Employment growth is a major policy priority in the Humber LEP Strategic Economic Plan 2014-20. Employment growth has been high but the unemployment rate is higher than the UK average, evidencing a socio-economic challenge. The sensitivity of the receptor is therefore considered to be **high**.

Significance of the effect

10.11.1.15 For the Humber LEP area under the Humber Port scenario, it is predicted that the sensitivity of the receptor is **high** and the magnitude is **minor**. The effect is of **minor beneficial** significance, which is not significant in EIA terms

10.11.1.16 For all other scenarios, the magnitude is predicted to be negligible and therefore the effect is not significant in EIA terms.

Enabling local residents to access employment opportunities through construction activities (SE-C-3)

Magnitude of impact

10.11.1.17 The socio-economic baseline highlights some capacity within the labour market locally; there are 25,000 unemployed residents across the Humber LEP study area and as of December 2018, there were 17,700 claimants in the Humber LEP study area seeking employment. This suggests that there is sufficient overall capacity within the labour market to enable local people to benefit from employment opportunities associated with the construction of Hornsea Four.

10.11.1.18 However, it is important to also consider the capability within the labour market to be able to assess the ability of local residents to meet the employment requirement. The baseline assessment showed 30% to 40% of claimants were seeking employment in occupations relevant to wind farm construction in 2013. Although not up to date, this does allow a tentative conclusion that there is likely to be sufficient capacity and capability locally to enable local residents to access employment opportunities associated with the construction of Hornsea Four, provided the occupational mix of those seeking employment seekers is consistent with that in previous years.

10.11.1.19 Hornsea Four will inevitably draw some of its labour from outside of the local economic development study area, however it is reasonable to expect that some new employment opportunities will be created locally and could be taken up by people living in the Humber LEP area. The employment impact under the Humber Port scenario has potential to deliver a reduction in the baseline number of residents seeking employment. Again, this is subject to there being a strong match between the skills and expertise of claimants and any employment opportunities created locally.

10.11.1.20 The annual employment impact as a percentage of the contextual indicator (claimants on the claimant count) range from 11.3% for the Humber Port scenario to 0.6% for the Non-UK Port scenario. This is purely a contextual measure as not all of the employment uplift will be a reduction in the baseline number of claimants. The extent to which these employment opportunities will result in reductions to the number of claimants depends on the extent to which local people can access the employment. This is linked to the skills of local residents and the information and support provided to enable them to access the jobs. It should be noted that the higher number of jobs created under the Humber Port scenario is likely to

include a greater number of people that are brought into the area from outside given the temporary nature of the employment opportunities.

10.11.1.21 The Applicant aims to work with local partners to maximise the ability of local people to access employment opportunities associated with the construction and operation of the project.

10.11.1.22 The predicted annual employment impact of Hornsea Four is shown in [Table 10.19](#).

Table 10.19 Predicted impact of employment impact for residents.

Study Area	Scenario	Average Annual Employment Impact (FTE Jobs)	Number of Claimants	Impact as % of Baseline Indicator
Humber LEP area	Humber Port	1600	17,700	9.0%
	Non-Humber UK Port	200		1.1%
	Non-UK Port	100		0.6%

Note: Figures may not sum due to rounding; Build period is assumed to be around 4.5 years

10.11.1.23 The impact is predicted to be of local spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **moderate** for the Humber Port scenario, **minor** for the non-Humber UK Port scenario and **negligible** for the non-UK port scenario. As such, only the Humber Port and non-Humber UK Port scenarios are considered further.

Sensitivity of the receptor

10.11.1.24 Employment opportunities for local residents is one of the highest policy priorities and although employment growth has been high, unemployment and the claimant count rate and deprivation have been higher than the UK average for a sustained period, evidencing a major and potentially severe socio-economic challenge. The sensitivity of the receptor is therefore considered to be **very high**.

Significance of the effect

10.11.1.25 For the Humber Port scenario, it is predicted that the sensitivity of the receptor is **very high** and the magnitude is **moderate**. The effect is of **major beneficial** significance, which is significant in EIA terms

10.11.1.26 For the non-Humber UK Port scenario, it is predicted that the sensitivity of the receptor is **very high** and the magnitude is **minor**. The effect is of **moderate beneficial** significance, which is significant in EIA terms

10.11.1.27 For the non-UK Port scenario, the magnitude is predicted to be **negligible** and therefore the effect is **not significant** in EIA terms

10.11.2 Operation and Maintenance

10.11.2.1 The impacts of the operation and maintenance of Hornsea Four have been assessed on Socio-economics. The environmental impacts arising from the operation and maintenance of Hornsea Four are listed in [Table 10.10](#) along with the maximum design scenario against which each operation and maintenance phase impact has been assessed.

Contributions to Economic Activity through Operation and Maintenance Activities (SE-O-4)

Magnitude of impact

10.11.2.2 The impacts on GVA creation under each scenario are summarised for each study area in [Table 10.20](#). Note that none of the GVA is associated with the upstream supply chain (not sale and distribution of energy) in the technical note ([Volume 6, Annex 10.1](#)) and within this chapter.

Table 10.20 Summary of GVA Impacts.

Study Area	Scenario	Direct Annual GVA (£ million)	Indirect Annual GVA (£ million)	Total Annual GVA (£ million)
Humber LEP area	Humber Port	£9.6	£1.7	£11.3
	Non-Humber UK Port	£0.1	£0.0	£0.1
UK	Humber Port	£19.5	£22.7	£42.3
	Non-Humber UK Port	£19.5	£22.7	£42.3

Note: Figures may not sum due to rounding

10.11.2.3 [Table 10.21](#) puts the impacts in the context of the baseline indicator values across the range of scenarios for each study area:

Table 10.21 GVA Impacts in Context of Baseline Indicator.

Study Area	Scenario	Annual GVA Impact (£ million)	Baseline GVA (£ million)	Impact as % of Baseline
Humber LEP area	Humber Port	£11.3	18,612	0.06%
	Non-Humber UK Port	£0.1		<0.01%
UK	Humber Port	£42.3	1,819,754	<0.01%

Study Area	Scenario	Annual GVA Impact (£ million)	Baseline GVA (£ million)	Impact as % of Baseline
	Non-Humber UK Port	£42.3		<0.01%

Note: Figures may not sum due to rounding

10.11.2.4 For the Humber LEP study area, the impact is predicted to be of local spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **negligible** for all scenarios.

10.11.2.5 For the UK study area, the impact is predicted to be of national spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible** for all scenarios.

10.11.2.6 Irrespective of the sensitivity of the receptor, the significance of the impact is **not significant** as defined in the assessment of significance matrix ([Table 10.14](#); [Volume 1, Chapter 5: EIA Methodology](#)) and is not considered further in this assessment.

Contributions to Employment through Operation and Maintenance Activities (SE-O-5)

Magnitude of impact

10.11.2.7 The impacts on employment creation under each scenario are summarised for each study area in [Table 10.22](#).

Table 10.22: Summary of Employment Impacts.

Study Area	Scenario	Direct Employment (FTE Jobs)	Indirect Employment (FTE Jobs)	Total Employment (FTE Jobs)
Humber LEP area	Humber Port	200	<50	200
	Non-Humber UK Port	<50	<50	<50
UK	Humber Port	300	250	500
	Non-Humber UK Port	300	250	500

Note: Figures may not sum due to rounding

10.11.2.8 [Table 10.23](#) sets the impacts against the baseline indicator across the range of scenarios for each study area:

Table 10.23 Employment Impacts in Context of Baseline Indicator.

Study Area	Scenario	Total Employment (FTE Jobs)	Baseline Employment (FTE Jobs)	Impact as % of Baseline
Humber LEP area	Humber Port	200	327,000	0.06%
	Non-Humber UK Port	<50		<0.01%
UK	Humber Port	500	24,752,500	<0.01%
	Non-Humber UK Port	500		<0.01%

Note: Figures may not sum due to rounding; Build period is assumed to be around 4.5 years

10.11.2.9 For the Humber LEP study area, the impact is predicted to be of local spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor indirectly. The magnitude is therefore, considered to be **negligible** for all scenarios.

10.11.2.10 For the UK study area, the impact is predicted to be of national spatial extent, short term duration, continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible** for all scenarios.

10.11.2.11 Irrespective of the sensitivity of the receptor, the significance of the impact is **not significant** as defined in the assessment of significance matrix ([Table 10.14](#); [Volume 1, Chapter 5: EIA Methodology](#)) and is not considered further in this assessment.

Enabling Local Residents to Access Employment Opportunities through Operation and Maintenance activities (SE-O-6)

Magnitude of impact

10.11.2.12 The potential for local people to access employment opportunities created as a result of the O&M of Hornsea Four is dependent on the location of the O&M bases and the match between the type of employment created and the skills and occupational profile of the local residents.

10.11.2.13 It can reasonably be expected that the direct and indirect effects would be focused on a smaller number of sectors than during the construction phase as activities would be related primarily to (i) manufacture and installation of spare components (ii) engineering activities associated with maintenance and (iii) land and marine transport of components. The main sectors considered in this assessment have therefore been limited to selected

manufacturing and engineering, specialist construction, marine and land transport and technical professional services.

10.11.2.14 The approach to assessing the magnitude of impact on access to O&M related employment amongst local residents has been assessed on the same basis as for the construction section of this chapter i.e. the assessment is based on:

- The existing concentrations of employment in relevant sectors (and therefore the likelihood that there is sufficient capability and capacity in the sector locally to capture O&M related opportunities);
- The level of relevant capacity in the local labour market, measured by the number of unemployed people seeking employment in occupations relevant to sectors likely to benefit from O&M related employment impacts. The estimated employment impact cannot be broken down into detailed sectors. However, cross referencing the sectors to occupational groups provides an indication of the likely relevance of the skills of people in the local labour force that are available for work, based on the type of occupations they are seeking; and
- The overall impact of the employment created on the baseline level of people seeking employment in relevant sectors.

10.11.2.15 The annual employment impact as a percentage of the contextual indicator (claimants on the claimant count) range from 1.1% for the Humber Port scenario to 0.0% for the Non-Humber Port scenario. This is purely a contextual measure as not all of the employment uplift will equate to a reduction in the baseline number of claimants. The extent to which these employment opportunities will result in reductions to the number of claimants depends on the extent to which local people can access the employment. This is linked to the skills of local residents and the information and support provided to local residents to enable them to access the jobs. The Applicant aims to work with local partners to maximise the ability of local people to access employment opportunities associated with the construction and operation of the project.

Table 10.24 Predicted impact of employment impact for residents.

Study Area	Scenario	Total Employment Impact (FTE Jobs)	Number of Claimants	Impact as % of Baseline Indicator
Humber LEP area	Humber Port	200	17,700	1.1%
	Non-Humber UK Port	<50		0.0%

Note: Figures may not sum due to rounding;

10.11.2.16 The impact is predicted to be of local spatial extent, long term duration and continuous. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be of **minor** impact for the Humber Port scenario and of **negligible** impact for the non-Humber UK Port scenario. Irrespective of the sensitivity of the receptor, the significance of the impact for the non-Humber UK Port scenario is **not significant** as defined

in the assessment of significance matrix ([Table 10.14](#); [Volume 1, Chapter 5: EIA Methodology](#)). As such, only the Humber Port scenario is considered further.

Sensitivity of the receptor

10.11.2.17 Employment opportunities for local residents is one of the highest policy priorities in the Humber LEP Strategic Economic Plan 2014-20 and although employment growth has been high, unemployment, the claimant count rate and deprivation have been higher than the UK average for a sustained period, evidencing a major or severe socio-economic challenge. The sensitivity of the receptor is therefore considered to be **very high**.

Significance of the effect

10.11.2.18 For the Humber Port scenario, it is predicted that the sensitivity of the receptor is **very high** and the magnitude is **minor**. The effect is of **moderate beneficial** significance, which is significant in EIA terms.

10.11.3 Decommissioning

10.11.3.1 The impacts of the decommissioning of Hornsea Four have been scoped out of the assessment on Socio-economics. Further details are provided in [Volume 4, Annex 5.1: Impacts Register](#).

10.12 Cumulative effect assessment (CEA)

10.12.1.1 Cumulative effects are scoped out for Socio-economics.

10.13 Transboundary effects

10.13.1.1 A screening of transboundary impacts was undertaken as part of the EIA Scoping exercise, in line with the suggested format set out in Annex 1 of PINS Advice. This is summarised below.

10.13.1.2 There is the potential for transboundary impacts arising from interaction with the activities of foreign shipping and navigation and foreign commercial fishing. These have been considered in [Volume 2, Chapter 8: Shipping and Navigation](#) and [Chapter 7: Commercial Fisheries](#).

10.13.1.3 In addition, potential transboundary impacts upon the economies of other European Economic Area (EEA) states may arise through the purchase of project components, equipment and the sourcing of labour from companies based outside the UK. Under Regulation 32 part 6(a) of the 2017 Regulations, the Secretary of State must enter into consultation with any EEA State concerned regarding the potential significant effects of the development on the environment of that EEA State and the measures envisaged to reduce or eliminate such effects. However, the sourcing of materials and labour from other EEA states is assumed to provide beneficial effects in the economies of such states and so the

consideration of “*measures envisaged to reduce or eliminate such effects*” is not relevant in the context of transboundary impacts.

10.13.1.4 As such, the screening exercise identified that there was no potential for significant transboundary effects regarding Socio-economics from Hornsea Four upon the interests of other EEA States.

10.14 Inter-related effects

10.14.1.1 Inter-related effects consider impacts from the construction, operation or decommissioning of Hornsea Four on the same receptor (or group). Such inter-related effects include both:

- Project lifetime effects: i.e. those arising throughout more than one phase of the project (construction, operation, and decommissioning) to interact to potentially create a more significant effect on a receptor than if just one phase were assessed in isolation; and
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor (or group). Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

10.14.1.2 A description of the process to identify and assess these effects is presented in Section 2 of [Volume 1, Chapter 5: EIA Methodology](#). The basis for the identification of receptor led effects is the inter-related effects screening report supplied as Annex J to the Hornsea Four Scoping Report (Ørsted, 2018). Where necessary this has been updated in line with project details now available.

10.14.1.3 As per Annex J to the Hornsea Four Scoping Report (Ørsted, 2018), the only potential inter-related effects relating to socio-economics identified were for effects relating to tourism. As this was scoped out of the assessment of socio-economics and no significant effects were identified in [Chapter 6: Land Use and Agriculture](#), no inter-related effects assessment is undertaken and as such, there are no inter-related effects identified for socio-economics.

10.15 Conclusion and summary

10.15.1.1 [Table 10.25](#) presents a summary of the significant impacts assessed within this PEIR, any mitigation and the residual effects.

Table 10.25 Summary of potential impacts assessed for Socio-economics.

Impact and Phase	Study Area	Scenario	Receptor and value/sensitivity	Magnitude and significance	Mitigation	Residual impact
<i>Construction</i>						
Contributions to Economic Activity through Construction Activities (SE-C-1)	Humber LEP area	Humber Port	Gross Value Added High	Minor Minor beneficial	None proposed beyond existing Commitments	Minor beneficial
		Non-Humber UK Port	Gross Value Added Not considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-UK Port	Gross Value Added Not considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
	UK	Humber Port	Gross Value Added Not considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-Humber UK Port	Gross Value Added Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-UK Port	Gross Value Added Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
Contributions to Employment through Construction Activities (SE-C-2)	Humber LEP area	Humber Port	Employment High	Minor Minor beneficial	None proposed beyond existing Commitments	Minor beneficial

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Impact and Phase	Study Area	Scenario	Receptor and value/sensitivity	Magnitude and significance	Mitigation	Residual impact
		Non-Humber UK Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-UK Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
	UK	Humber Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-Humber UK Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-UK Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
	Enabling local residents to access employment opportunities through construction activities (SE-C-3)	Humber LEP area	Humber Port	Claimants Very High	Moderate Major beneficial	None proposed beyond existing Commitments
Non-Humber UK Port			Claimants Very High	Minor Moderate beneficial	None proposed beyond existing Commitments	Moderate beneficial
Non-UK Port			Claimants Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant

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Impact and Phase	Study Area	Scenario	Receptor and value/sensitivity	Magnitude and significance	Mitigation	Residual impact
<i>Operation</i>						
Contributions to Economic Activity through Operation and Maintenance Activities (SE-O-4)	Humber LEP area	Humber Port	Gross Value Added Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-Humber UK Port	Gross Value Added Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
	UK	Humber Port	Gross Value Added Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-Humber UK Port	Gross Value Added Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
Contributions to Employment through Operation and Maintenance Activities (SE-O-5)	Humber LEP area	Humber Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-Humber UK Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
	UK	Humber Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant
		Non-Humber UK Port	Employment Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant

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Impact and Phase	Study Area	Scenario	Receptor and value/sensitivity	Magnitude and significance	Mitigation	Residual impact
Enabling Local Residents to Access Employment Opportunities through Operation and Maintenance activities (SE-O-6)	Humber LEP area	Humber Port	Claimants Very High	Minor Moderate beneficial	None proposed beyond existing Commitments	Moderate beneficial
		Non-Humber UK Port	Claimants Not Considered	Negligible Not significant	None proposed beyond existing Commitments	Not significant

10.16 References

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Office for National Statistics (2018b) Annual Population Survey. Newport, Office for National Statistics.

Office for National Statistics (2018c) Business Register and Employment Survey. Newport, Office for National Statistics.

Office for National Statistics (2018d) Annual Survey of Hours and Earnings. Newport, Office for National Statistics.

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