Hornsea Project Four: Environmental Statement (ES)

PINS Document Reference: A3.10
APFP Regulation 5(2)(a)

Volume A3, Chapter 10: Socio-economics

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A3.10
Version: B

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Glossary

Term	Definition
Commitment	A term used interchangeably with mitigation and enhancement measures. The purpose of Commitments is to reduce and/or eliminate Likely Significant Effects (LSEs), in EIA terms. Primary (Design) or Tertiary (Inherent) are both embedded within the assessment at the relevant point in the EIA (e.g. at Scoping, Preliminary Environmental Information Report (PEIR) or ES). Secondary commitments are incorporated to reduce LSE to environmentally acceptable levels following initial assessment i.e. so that residual effects are acceptable.
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.
Energy Balancing Infrastructure (EBI)	The onshore substation includes energy balancing Infrastructure. These provide valuable services to the electrical grid, such as storing energy to meet periods of peak demand and improving overall reliability.
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 (ES).
Environmental Statement (ES)	A document reporting the findings of the EIA and produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations.
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.

Term	Definition
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 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.
High Voltage Alternating Current (HVAC)	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.
High Voltage Direct Current (HVDC)	High voltage direct current is the bulk transmission of electricity by direct current (DC), whereby the flow of electric charge is in one direction.
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 landfall area between Mean Low Water Spring (MLWS) tide and the Transition Joint Bay (TJB) inclusive of all construction works, including the offshore and onshore ECC, intertidal working area and landfall compound. Where the offshore cables come ashore east of Fraisthorpe.
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 local economic development study area divided by that of the UK.
Maximum Design Scenario (MDS)	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 the Applicant. Mitigation measures (Commitments) are embedded within the assessment at the relevant point in the EIA (e.g. at Scoping, PEIR or ES).
National Grid Electricity Transmission (NGET) substation	The grid connection location for Hornsea Four at Creyke Beck.
Onshore substation (OnSS)	Comprises a compound containing the electrical components for transforming the power supplied from Hornsea Project Four to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid. If a HVDC system is used the OnSS will also house equipment to convert the power from HVDC to HVAC.
Order Limits	The limits within which Hornsea Project Four (the 'authorised project') may be carried out.

Term	Definition
Orsted Hornsea Project Four Ltd.	The Applicant for the proposed Hornsea Project Four Offshore Wind Farm Development Consent Order (DCO).
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
CfD	Contract for Difference
DCO	Development Consent Order
EBI	Energy Balancing Infrastructure
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 A4, 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

Units

Unit	Definition
GW	Gigawatt
km	Kilometre
kV	Kilovolt
kW	Kilowatt

10.1 Introduction

10.1.1.1 Orsted Hornsea Project Four Limited (the 'Applicant'') is proposing to develop Hornsea Project Four Offshore Wind Farm (hereafter 'Hornsea Four'). Hornsea Four will be located approximately 69 km offshore the East Riding of Yorkshire in the Southern North Sea and will be the fourth project to be developed in the former Hornsea Zone. Hornsea Four will include both offshore and onshore infrastructure including an offshore generating station (wind farm), export cables to landfall, and on to an onshore substation (OnSS) with energy balancing infrastructure (EBI), and connection to the electricity transmission network.

10.1.1.2 This chapter of the Environmental Statement (ES) presents the results of the Environmental Impact Assessment (EIA) for the potential impacts of 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.

10.1.1.3 This chapter summarises information contained within the technical report, which is included at **Volume A6, Annex 10.1: Socio-economics Technical Report**.

10.2 Purpose

10.2.1.1 The primary purpose of the ES is to support the Development Consent Order (DCO) application for Hornsea Four under the Planning Act 2008 (the 2008 Act). This ES constitutes the environmental information for Hornsea Four and sets out the findings of the EIA.

10.2.1.2 The ES has been finalised with due consideration of pre-application consultation to date (see **Volume B1, Chapter 1: Consultation Report** and **Table 10.5**) and the ES will accompany the application to the Planning Inspectorate (PINS) for Development Consent.

10.2.1.3 This ES 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;
- 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.

10.2.1.4 There is the potential for interaction with UK shipping and UK fishing. This has been considered in **Volume A2, Chapter 8: Shipping and Navigation** and **Chapter 7: Commercial Fisheries**.

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 ES
"*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).	Socio-economic impacts of Hornsea Four that have been scoped into the assessment have been assessed for both the former Humber Local Enterprise Partnership (LEP) area and the United Kingdom (UK) study areas in **Section 10.11**.
"*This assessment should consider all relevant socio-economic impacts, which may include:* • *the creation of jobs and training opportunities;* • *the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;* • *effects on tourism;* • *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* • *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*	The creation of jobs and training opportunities have been assessed. Provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities was not considered in detail for 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**). Effects on tourism were not considered in detail for the socio-economics assessment. Further details are provided in **Volume A4, Annex 5.1: Impacts Register**. Effects of employment have been assessed for construction and operation and maintenance phases.

Summary of NPS EN-1 provisions	How and where considered in the ES
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. " (EN-1, paragraph 5.12.3).	Cumulative effects have not been considered in detail for the socio-economics assessment. Further details are provided in **Volume A4, Annex 5.1: Impacts Register.**
"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." (EN-1, paragraph 5.12.4).	Local policy context has been considered for the assessment of socio-economics within the ES chapter (**Table 10.4**) and within **Volume A6, Annex 10.1: Socio-economics Technical Report.**
"*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).	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**.

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 ES
"*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 the SoS considers to be both relevant and important to its decision. The SoS may conclude that limited weight is to be given to assertions of socio-economic effects that are not supported by evidence (particularly in view of the need for energy infrastructure as set out in this NPS)*" (EN-1, paragraph 5.12.6-5.12.7).	Evidence for the assessment of socio-economics is provided throughout the chapter, notably in **Section 10.11**. The assessment draws on a number of sources of evidence including socio-economic data, evidence from other offshore wind developments and relevant policy documents.
"*The SoS should consider any relevant positive provisions the developer 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).	The requirement for mitigation has been considered in the socio-economics assessment in **Section 10.11**. The assessment finds that no mitigation measures have been identified as necessary.

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 A6, 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
HM Treasury, Build Back Better: our plan for growth, 2021	• Identifies transition to net zero emissions by 2050 among its three priorities. • Supports investment in net zero, to deliver among others up to 60,000 jobs in the offshore wind sector in 2030.
Department for Business, Energy and Industrial Strategy et al, The Ten Point Plan for a Green Industrial Revolution, 2020	• Commits £12 billion of government to support green recovery post-pandemic. • Aims to quadruple offshore wind capacity to 40GW by 2030, which could attract around £20 billion of private investment. • Extends £160 million of government investment in modern ports and manufacturing infrastructure. • Estimates that 60% of spending on UK offshore wind invested back into the economy by 2030.
Department of Business, Energy and Industrial Strategy, Energy White Paper, 2020	• Sets out a strategy for the wider energy system that transforms energy, supports a green recover and creates a fair deal for consumers.
HM Treasure, National Infrastructure Strategy, 2020	• Looks to transform the country's infrastructure to achieve, amongst others, the transition to net zero emissions by 2050. • Aims to provide clear support for private sector investment and reform infrastructure delivery processes and mechanisms.
UK Government, UK Industrial Strategy, White Paper, 2017	• 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; and • Aims to maximise the share of the global markets taken up by UK businesses in the sector. • Superseded by the *"Build Back Better: our plan for growth"* policy paper in March 2021.
Sector Deal, Department for Business, Energy and Industrial Strategy, 2019	• Commitment to increasing UK content to 60% of value associated with offshore wind farm activity by 2030; and • £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
Greater Lincolnshire LEP, Greater Lincolnshire Strategic Economic Plan 2014-30, 2016	• Identifies low carbon economy, with a particular focus on renewable energy, as one of the area's defining and strongest sectors where growth will be driven. • Looks to grow specific opportunities identified as future defining features of the area, such as ports and logistics. • Sets outs low-carbon, renewable and offshore economy sector specific priorities.
Greater Lincolnshire LEP, Greater Lincolnshire Plan for Growth, 2021	• Identifies the energy sector among its drivers of revival, with a vision to 'pioneer industrial decarbonisation' and to 'be a test bed for technologies in clean energy generation, storage and distribution'. • Aims to maximise the strategic advantage of its ports, transforming them into one of the world's most smart, efficient, and clean port cluster.
Greater Lincolnshire LEP, Draft Local Industrial Strategy, 2021	• Indicates supports for the offshore wind sector off Greater Lincolnshire's coast, building on the success of the Humber Energy Estuary.
ERYC, East Riding Local Plan 2012-2029, Adopted April 2016	• 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 EIA scoping process (Orsted 2018) and formal consultation on the Preliminary Environmental Impact Report (PEIR) under section 42 of the 2008 Act. An overview of the project consultation process is presented within **Volume A1, 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 ES. 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 ES
PINS	Scoping Opinion, November 2018	Employment and economic benefit derived from decommissioning *"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."*	Employment and economic benefit derived from decommissioning is scoped out of the EIA and not assessed in this ES chapter. Further details are provided in **Volume A4, Annex 5.1: Impacts Register**
Public Health England	Scoping Opinion, November 2018	*"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.* *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.* *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."*	Pressures on social services such as health care, education and justice are not considered in detail in the ES and not assessed in this chapter. Further details are provided in **Volume A4, Annex 5.1: Impacts Register** Consideration of health and wellbeing (including mental health) is included in in **Volume A4, Annex 5.8: Health impact Assessment**.
ERYC	Scoping opinion, January 2019	*"It is agreed that the Socio-Economic issues set out could be addressed by other EIA topics."*	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	*"ERYC will consider the benefits of the project when submitting its Local Impact Report, and these should be set out clearly in a socio-*	Employment and GVA impacts are the primary focus of this chapter. A

Consultee	Date, Document, Forum	Comment	Where addressed in the ES
		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."	summary of impacts and effects is set out in **Table 10.17**.
ERYC	Scoping opinion, January 2019	*"No comments on socio-economic impact of decommissioning."*	Employment and economic benefit derived from decommissioning is scoped out of the EIA and not assessed in this chapter.
Hull City Council	Hornsea Project Four Offshore Wind Farm – Statutory Consultation Response to PEIR, September 2019	*"The Council is very supportive of the development of the Hornsea Project Four Offshore Wind Farms. A key element of the Local Industrial Strategy being prepared by the Humber Local Economic Partnership (LEP), which the Council is partner to, is for clean growth which includes the renewables sector, and offshore wind energy. The Council also declared a Climate Emergency in March 2019, which while setting targets for the city, reflects the city's key ambitions for sourcing energy in the future. A key company within the city is Siemens who have built and are extending a wind turbine blade factory at Alexander Dock, with the site also being a key hub for shipping out of components for final assembly offshore.* *It is understood that existing sections of the Hornsea wind farm make land connections to the National Grid at various points in the UK. This is the first to be made within this area. Clearly the physical impact of the scheme to make landfall of undersea cabling and construction and installation of necessary infrastructure and routing through to the Creyke Beck Sub Station near Cottingham, will impact within the East Riding. The Council have previously made clear that the scheme will not have physical / visual impact on the city. However, the Council is keen to make clear its support for this necessary source of energy generation, and support for the proposed Development Consent Order subject of this consultation."*	The Applicant welcomes the response from Hull City Council. The comments do not require further consideration.

Consultee	Date, Document, Forum	Comment	Where addressed in the ES
ERYC	Hornsea Project Four Offshore Wind Farm – Statutory Consultation Response to PEIR, September 2019	*"On behalf of the Economic Development department of the East Riding of Yorkshire Council I would like to extend our full support to the Hornsea Four Offshore Wind Farm project. Offshore wind is recognised as critical in combatting climate change through the generation of low-carbon energy, and its development will be essential in meeting the Government's target of the UK becoming carbon neutral by 2050. The Humber is perfectly situated to drive this goal forward, as it contributes to over a quarter of the UK's energy, and is at the forefront of developing a world-leading offshore wind sector. East Riding of Yorkshire Council's Economic Development team are fully committed to working with the developer in the Humber region in order to maximise its economic growth potential and to work towards the Humber becoming a zero-carbon industrial economy by 2040. The Humber was highlighted in the offshore wind sector deal announced in March 2019 as an exemplar LEP area for maximising opportunities within the sector with projects such as 'Aura' and 'ergo' led by the University of Hull and ERYC respectively, bringing together a coalition of public and private sector partners to sustain the region as a global leader in offshore wind. As a local authority we will continue to work with the Humber LEP who are investing in skills and business support to maximise opportunities in the offshore wind sector including supply chain and specialist skills job creation. The Council also particularly welcomes the commitments made by the developer to ensure that the project does not impact on sensitive marine and terrestrial ecological sites."*	The Applicant welcomes the response from ERYC. The comments do not require further consideration.

10.5 Study area

10.5.1.1 The former 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 (see **Figure 10.1**). Although the exact port locations for both construction and operations are currently unknown, the proximity of the former 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 As of April 2021, the Hull & East Yorkshire (HEY LEP), consisting of the Hull and East Riding of Yorkshire council areas, replaced the Humber LEP. The North Lincolnshire and North East Lincolnshire councils are now only included in the Greater Lincolnshire LEP area.

10.5.1.3 A national study area has also been identified, the UK given the scale of Hornsea Four, to assess national effects of Hornsea Four. This study area only relates to impacts not considered in detail in this ES. See **Table 10.9** for further information on impacts not considered in detail in the ES.

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 A6, Annex 10.1: Socio-economics Technical Report**. Data were acquired within the local economic development study area (the former 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 ES 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 and Year of Publication
Economic Activity	GVA	ONS, Gross Value Added (balanced approach), 2021
Employment	Employment	ONS, Business Register & Employment Survey, 2020
	Industry Breakdown	ONS, Business Register & Employment Survey, 2020
Access to Employment	Working Age Population	ONS, Mid-Year Population Estimates, 2021
	Economic Activity	ONS, Annual Population Survey, 2021
	Unemployment Rate	ONS, Annual Population Survey, 2021
	Claimant Count	ONS, Claimant Count, 2021
	Occupational Breakdown	ONS, Annual Population Survey, 2021
	Skills	ONS, Annual Population Survey, 2021

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 former 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 A6, Annex 10.1: Socio-economics Technical Report**.

Labour Market Indicators

10.7.1.3 The unemployment rate, in the local study area is 5% which is in line with that of the UK. There are 21,000 unemployed residents across the local economic development study area. As of June 2021, there were 32,770 claimants in the study area seeking employment which has seen a significant spike since the start of the COVID-19 pandemic.

10.7.1.4 Although out of date, the latest available 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.[1]

Employment

10.7.1.5 The local economic development study area employs around 390,000 people. This is shown in **Table 10.7**.

Table 10.7: Employment and Employment Density, 2019.

	Local Study Area	Great Britain
Total Employees (000s)	390	30,079
Total Full-Time Equivalent (FTE) Jobs (000s)	325	25,234
Employment Density (Jobs per 1,000 working age residents)	692	721

Source: ONS, Business Register and Employment Survey, 2020; ONS, Mid-Year Population Estimate, 2021

10.7.1.6 Employment levels are more variable in the former Humber LEP area than Great Britain. The local study area was slow to recover from the 2008/09 recession, compared with Great Britain but then outpaced Great Britain's employment growth up to 2018, at which point it

[1] ONS, Job Seeker's Allowance Claimants by Sought Occupation, 2013

has lagged behind that of Great Britain. In total from 2014 to 2019, employment has risen by 14,100 FTE employees (0.9%).

Gross Value Added and Earnings

10.7.1.7 As shown in **Table 10.8**, the local study area contributed £21 billion in GVA to the UK economy in 2019 which accounts for around 1% of UK GVA. GVA per head of population is around £22,500 in the local study area which is 24% below the UK average of £29,600.

Table 10.8 GVA and GVA per Head, 2019.

Study Area	GVA (£ billion)	GVA per Head (£)
Local Study Area	21.0	22,500
UK	1,977	29,600

Source: ONS, Gross Value Added (balance), 2021

Deprivation

10.7.1.8 According to the 2019 Index of Multiple Deprivation from the ONS, the former 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 local study area are in the highest 10% in terms of deprivation across England.

10.7.2 Evolution of the Baseline

10.7.2.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 require that "*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*" is included within the ES (EIA Regulations, Schedule 4, Paragraph 3). From the point of assessment, over the course over the course of the development and operational lifetime of Hornsea Four (operational lifetime anticipated to be 35 years), long-term trends mean that the condition of the baseline environment is expected to evolve. This section provides a qualitative description of the evolution of the baseline environment, on the assumption that Hornsea Four is not constructed, using available information and specialist technical knowledge of socio-economics. This approach allows long-term changes and trends to be taken into consideration in order to provide confidence that the assessment of long-term effects is valid.

10.7.2.2 It is challenging to provide a future baseline scenario for socio-economic receptors, particularly in quantitative terms. 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.

10.7.2.3 For this reason, a high-level qualitative future baseline scenario without Hornsea Four is provided. Given the significant levels of renewable activity already coming forward both nationally and regionally, employment would be expected to continue its current trend in the long term. In the short to medium term, the COVID-19 crisis is likely to cause a significant negative economic shock both nationally and locally. This has been shown already in some of the statistics that are published more frequently with 12,800 more people being picked up in local claimant count data in June 2021 than in June 2019.[2] The Office for Budget Responsibility expects national employment and economic activity to fall significantly and unemployment to rise in the short term and then mostly recover over a 5-year period.[3]

10.7.2.4 It is possible that lasting impacts on the supply chain may cause issues for the renewables sector, however, early evidence suggests that renewables and low-carbon energy may accelerate after the crisis leaving the renewables industry relatively less impacted than other sectors in the medium to long term.[4]

10.7.2.5 Although specific policy is still under development, there have been a number of announcements made on the importance of offshore wind in the economic recovery from the COVID-19 pandemic. The Prime Minister announced: "*We believe that in 10 years' time offshore wind will be powering every home in the country, with our target rising from 30 gigawatts to 40 gigawatts*" with plans to create 2,000 jobs in construction for the sector supporting a further 60,000. Details on the plans are yet to be published but this demonstrates a direction of travel for policy in positioning the sector as a key element in the recovery.[5]

10.7.2.6 With a higher than national average claimant count rate, the Humber region is more exposed to the impact of the COVID-19 crisis and may see a more significant and persistent downturn than that felt nationally, which would lead to a higher number of residents available for work, although it is not possible to say definitively.

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

[2] ONS, Claimant Count, 2021
[3] Office for Budget Responsibility, Coronavirus Analysis, April 2020
[4] https://uk.reuters.com/article/us-shell-outlook/transition-to-low-carbon-energy-may-accelerate-after-crisis-shell-idUKKBN22C2ER
[5] Prime Minister Boris Johnson, Conservative Party Conference Speech, October 2020

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 The DCO application does not seek authorisation for any development activities that may be required 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 former Humber LEP area as this is the closest area in proximity to all elements of Hornsea Four. Scenarios with alternative non-HEY 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 A1, Chapter 4: Project Description** (180), the potential future capacity of Hornsea Four will depend upon turbine technology and other factors at the point of construction. As such, for the purposes of this assessment only, a nominal capacity has been selected 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 provides a worst-case 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'. Furthermore, if wind turbine MW capacity is increased (e.g. 11 MW turbine), the effect significance would not be reduced.

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 A1, 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 2024. 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 "Not considered in detail in the ES"

10.8.1.1 Upon consideration of the baseline environment, the project description outlined in **Volume A1, Chapter 4: Project Description**, the Hornsea Four commitments (**Volume A4, Annex 5.2: Commitments Register**) and responses to formal consultation on the PEIR, several potential impacts upon socio-economics are 'Not considered in detail in the ES". These impacts are outlined, together with a justification for why they are not considered further in **Table 10.9**, which should be read in conjunction with **Volume A4, Annex 5.1: Impacts Register**.

10.8.1.2 In July 2019, Highways England issued an update to the DMRB significance matrix (see **Volume A1, Chapter 5: Environmental Impact Assessment Methodology**). Impacts formerly assessed within the category medium sensitivity and minor magnitude, as Minor (Not Significant), under the new guidance are now within the significance range of Slight or Moderate and therefore require professional judgement. Following a review of impacts, it was considered that the changes do not alter the overall significance of the impacts assessed at Scoping and in the PEIR (see **Volume A4, Annex 5.1: Impacts Register**). Therefore, impacts assessed as not significant at PEIR have not been considered in detail within this ES chapter, unless there has been a material change to Hornsea Four, baseline characterisation, or the assessment methodology that necessitates re-assessment. A summary of the justification for this consideration is provided in **Table 10.9**.

Table 10.9: Socio-economic impact register – Impacts not considered in detail in the ES and justification.

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	No likely significant effect. Agreed by PINS to be scoped out (Scoping Opinion, November 2018, ID:4.18.2)
Tourism Impacts (SE-A-9)	No Likely Significant Effects	Not considered in detail in the ES	Absence of specific response from PINS during EIA scoping. 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. 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

Project activity and impact	Likely significance of effect	Approach to assessment	Justification
			necessary to assess under Socio-economics. Inter-related effects are identified in Section 10.14.
Adequate Services and Infrastructure – Pressures on social services such as health care, education and justice (SE-A-10)	No Likely Significant Effects	Not considered in detail in the ES	Absence of specific response from PINS during EIA scoping. 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.
Adequate Services and Infrastructure – Housing Pressures – e.g. affordability, availability and appropriateness (SE-A-11)	No Likely Significant Effects	Not considered in detail in the ES	Absence of specific response from PINS during EIA scoping. 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.
Cumulative Impacts relevant to Socio-economics (SE-A-8)	No Likely Significant Effects	Not considered in detail in the ES	Absence of specific response from PINS during EIA scoping. 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 simply be adding to the benefits provided from other planned development. Furthermore, the effects scoped into this assessment are not made against a specific baseline capacity indicator and as such the addition of other planned developments would not tip the balance of under or over capacity.

Project activity and impact	Likely significance of effect	Approach to assessment	Justification
Contributions to economic activity through construction activities (SE-C-1)	No likely significant effect	Not considered in detail in the ES. No likely significant effect identified at PEIR	Assessed as part of the EIA, as set out in the PEIR (Orsted 2019) and confirmed in the impact register, and no likely significant effect was identified (**Volume A4, Annex 5.1 Impacts & Effects Register**).
Contributions to employment through construction activities (SE-C-2)	No likely significant effect	Not considered in detail in the ES. No likely significant effect identified at PEIR	Assessed as part of the EIA, as set out in the PEIR (Orsted 2019) and confirmed in the impact register, and no likely significant effect was identified (**Volume A4, Annex 5.1 Impacts & Effects Register**).
Contributions to economic activity through operation and maintenance activities (SE-O-4)	No likely significant effect	Not considered in detail in the ES. No likely significant effect identified at PEIR	Assessed as part of the EIA, as set out in the PEIR (Orsted 2019) and confirmed in the impact register, and no likely significant effect was identified (**Volume A4, Annex 5.1 Impacts & Effects Register**).
Contributions to employment through operation and maintenance activities (SE-O-5)	No likely significant effect	Not considered in detail in the ES. No likely significant effect identified at PEIR	Assessed as part of the EIA, as set out in the PEIR (Orsted 2019) and confirmed in the impact register, and no likely significant effect was identified (**Volume A4, Annex 5.1 Impacts & Effects Register**).

Notes:
Grey - Potential impact is scoped out and both PINS and Hornsea Four agree.
Red – Potential impact is not considered in detail in the ES with no consensus between PINS and Hornsea Four at EIA Scoping and further justification provided during the pre-application stage.
Purple - Not considered in detail in the ES. No likely significant effect identified at PEIR.

10.8.2 Commitments

10.8.2.1 Hornsea Four has adopted commitments (primary design principles inherent as part of Hornsea Four, installation techniques and engineering designs/modifications) as part of its

pre-application consultation and design phase, to eliminate and/or reduce the LSE of a number of impacts. These are outlined in **Volume A4, 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 ES (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 or enhancements to provide economic benefits due to the early stages of Hornsea Four; however, Hornsea Four has developed **Volume F2, Chapter 18 Outline Employment and Skills Plan** which outlines the plans 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, the Applicant will work with the relevant Local Enterprise Partnership areas and wider stakeholders to identify skills and employment needs in the local area and discuss local economic benefit (see **Volume F2, Chapter 18: Outline Employment and Skills Plan** for further details).

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

10.9 Maximum Design Scenario

10.9.1.1 This section describes the parameters on which the socio-economics assessment has been based. These are the parameters which are judged to give rise to the maximum levels of effect for the assessment undertaken, as set out in **Volume A1, Chapter 4: Project Description**. The maximum design scenario (MDS) is 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
Construction			
Enabling local residents to access employment opportunities through construction activities (SE-C-3)	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.
Operation			
Enabling local residents to access employment opportunities through operation and maintenance activities (SE-O-6)	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, procurement approach and the geography of the

Impact and Phase	Embedded Mitigation Measures	Maximum Design Scenario / Rochdale Envelope	Justification
			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.
Decommissioning			
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 A6, 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 (2019) methodology, which is described in further detail in **Volume A1, 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	The receptor is identified as the highest-ranking policy priority (as a result of economic potential and/or need). There is evidence of severe socio-economic challenges, underperformance and vulnerability for the receptor in the study area.
High	The receptor is identified as a policy priority (as a result of economic potential and/or need). There is evidence of major socio-economic challenges or underperformance and vulnerability for the receptor in the study area.
Medium	The receptor is not identified as a policy priority (as a result of economic potential and/or need).
Low	The receptor is not identified as a policy priority (as a result of economic potential and/or need). There is evidence that the receptor is resilient and no particular weaknesses or challenges for the receptor in the study area.

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

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 A1, 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*
Environmental value (sensitivity)	*Low*	Neutral or Slight (Not Significant)	Neutral or Slight (Not Significant)	Slight (Not Significant)	Slight (Not Significant) or Moderate (Significant)
	Medium	Neutral or Slight (Not Significant)	Slight (Not Significant) or Moderate (Significant)	Moderate or Large (Significant)	Moderate or Large (Significant)
	High	Slight (Not Significant)	Slight (Not Significant) or Moderate (Significant)	Moderate or Large (Significant)	Large or Very Large (Significant)
	Very High	Slight (Not Significant)	Moderate or Large (Significant)	Large or Very Large (Significant)	Very Large (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.

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

Magnitude of impact

10.11.1.3 The socio-economic baseline highlights some capacity within the labour market locally; there are 21,000 unemployed residents across the local study area and as of June 2021, there were 32,770 claimants in the local study area. 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.

10.11.1.4 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.

10.11.1.5 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 study area considered here. The employment impact under the HEY 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.

10.11.1.6 The annual employment impact as a percentage of the contextual indicator (claimants on the claimant count) range from 4.3% for the HEY Port scenario to 0.3% 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 HEY 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.

10.11.1.7 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.

10.11.1.8 The predicted annual employment impact of Hornsea Four is shown in **Table 10.15**.

Table 10.15 Predicted impact of employment impact for residents.

Study Area	Scenario	Average Annual Employment Impact (FTE Jobs)	Number of Claimants	Impact as % of Baseline Indicator
Local Study Arear (Former Humber LEP)	HEY Port	1600	37,200	4.3%
	Non-HEY UK Port	200		0.54%
	Non-UK Port	100		0.3%

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

10.11.1.9 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 HEY Port scenario, **minor** for the non-HEY UK Port scenario

and **negligible** for the non-UK port scenario. As such, only the HEY Port and non-HEY UK Port scenarios are considered further.

Sensitivity of the receptor

10.11.1.10 Employment opportunities for local residents is one of the highest policy priorities and although employment growth has been high, 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

10.11.1.11 For the HEY 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

10.11.1.12 For the non-HEY 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

10.11.1.13 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.

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

Magnitude of impact

10.11.2.2 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.

10.11.2.3 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.

10.11.2.4 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);
- 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
- overall impact of the employment created on the baseline level of people seeking employment in relevant sectors.

10.11.2.5 The annual employment impact as a percentage of the contextual indicator (claimants on the claimant count) range from 0.5% for the HEY Port scenario to 0.0% for the Non-HEY 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 10.16 Predicted impact of employment impact for residents.

Study Area	Scenario	Total Employment Impact (FTE Jobs)	Number of Claimants	Impact as % of Baseline Indicator
Local Study Area (Former Humber LEP)	HEY Port	200	17,700	0.54%
	Non-HEY UK Port	<50		0.0%

Note: Figures may not sum due to rounding.

10.11.2.6 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 **negligible** impact for the HEY Port scenario and of **negligible** impact for the non-HEY UK Port scenario. Irrespective of the sensitivity of the receptor, the significance of the impact for the HEY Port and non-HEY UK Port scenarios is **neutral** as

defined in the assessment of significance matrix (Table 10.14). As such, neither scenario is considered further.

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 A4, Annex 5.1: Impacts Register.

10.12 Cumulative effect assessment (CEA)

10.12.1.1 Cumulative effects are not considered in detail 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 A2, 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 Article 32 (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 considered relevant in the context of transboundary impacts.

10.13.1.4 As such, the screening exercise identified that there was no potential for significant adverse 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 A1, 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 (Orsted 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 (Orsted 2018), the only potential inter-related effects relating to socio-economics identified were for effects relating to tourism. As this was not considered in detail for 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 The assessment of socio-economic effects concludes that Hornsea Four will have significant beneficial effects on enabling local residents to access employment opportunities through construction activities within the local economic development study area (former Humber LEP).

10.15.1.2 For both the HEY Port and non-HEY UK Port scenarios, Hornsea Four will result in moderate beneficial impacts on the local economic development study area during construction.

10.15.1.3 The assessment does not identify any necessary mitigation measures beyond existing Commitments for socio-economic effects.

10.15.1.4 **Table 10.17** presents a summary of the potentially significant impacts assessed within this ES, any mitigation and the residual effects.

Table 10.17 Summary of potential impacts assessed for Socio-economics.

Impact and Phase	Study Area	Scenario	Receptor and value/sensitivity	Magnitude and significance	Mitigation	Residual impact
Construction						
Enabling local residents to access employment opportunities through construction activities (SE-C-3)	Local Study Area (Former Humber LEP)	HEY Port	Claimants Very High	Minor Moderate beneficial	None proposed beyond existing Commitments	Moderate beneficial
		Non-HEY UK Port	Claimants Very High	Minor Moderate beneficial	None proposed beyond existing Commitments	Moderate beneficial
		Non-UK Port	Claimants Not Considered	Negligible Neutral	None proposed beyond existing Commitments	Neutral
Operation						
Enabling Local Residents to Access Employment Opportunities through Operation and Maintenance activities (SE-O-6)	Local Study Ara (Former Humber LEP)	HEY Port	Claimants Not Considered	Negligible Neutral	None proposed beyond existing Commitments	Neutral
		Non-HEY UK Port	Claimants Not Considered	Negligible Neutral	None proposed beyond existing Commitments	Neutral

10.16 References

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