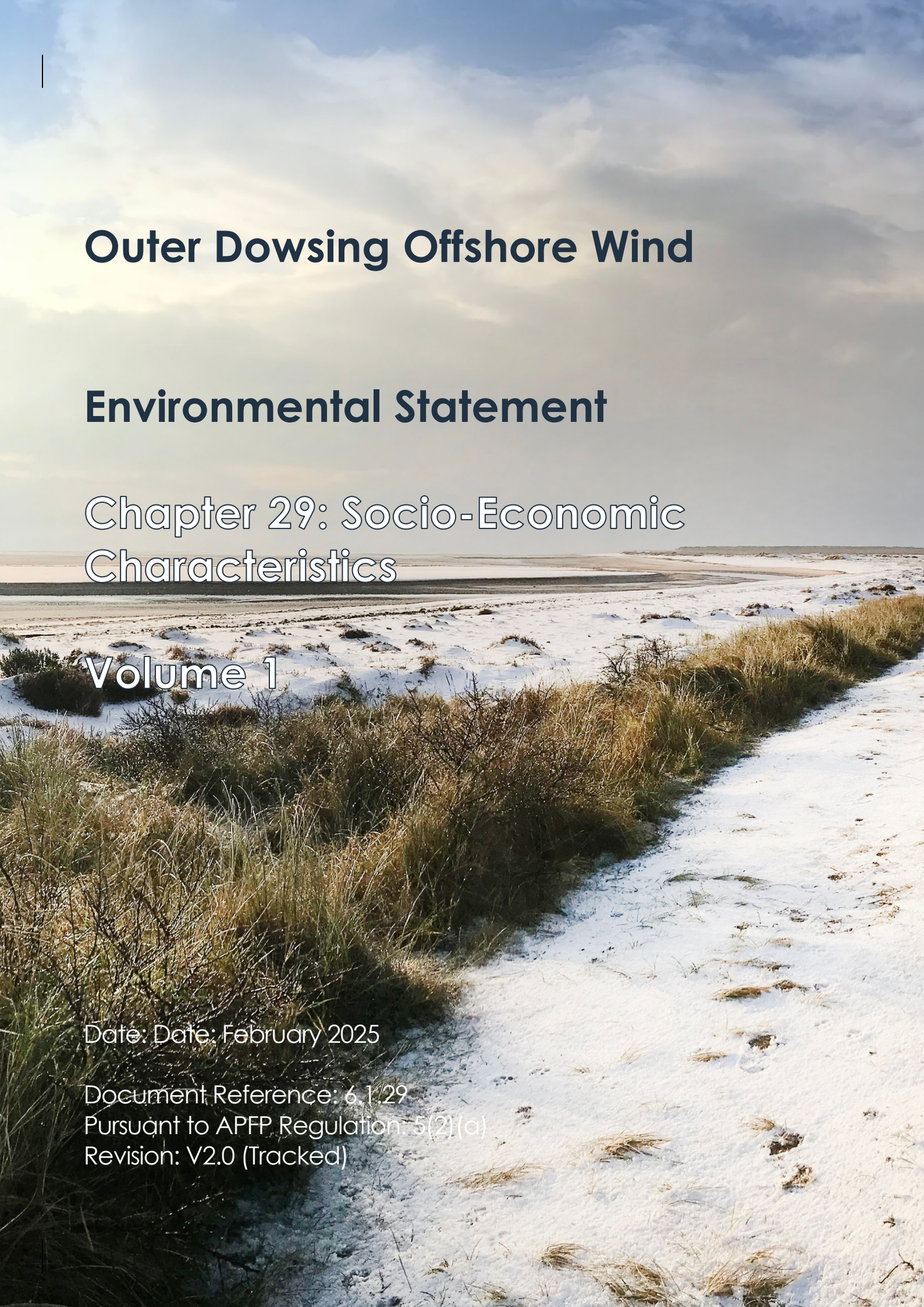

Outer Dowsing Offshore Wind

Environmental Statement

Chapter 29: Socio-Economic Characteristics

Volume 1

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Change Log

- Examination Update: updates to reflect, where relevant: clarifications to date in Examination; correcting errata; additional commitments made through Examination; and changes to status of or addition of cumulative projects

Table of Contents

Table of Tables

List of Figures (Volume 2)

List of Plates

Abbreviations / Acronyms

Acronym	Expanded name
AIS	Automatic Identifier System
AONB	Area of Outstanding Natural Beauty
AoS	Area of Search
BMV	Best and Most Versatile
BEIS	Department for Business, Energy and Industrial Strategy
CEFAS	Centre for Environment, Fisheries & Aquaculture Science
CIA	Cumulative Impact Assessment
DESNZ	Department of Energy Security and Net Zero
DNPS	Draft National Policy Statement
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EMS	European Marine Site
ES	Environmental Statement
FTE	Full Time Employment
GDP	Gross Domestic Product
GP	General Practitioner
GVA	Gross Value Added
GW	Gigawatts
HEY	Hull and East Yorkshire
ICB	Integrated Care Board
IDC	Inter-Disciplinary Check
LTRA	Local Tourism and Recreation Area
LEA	Local Economic Area
LEP	Local Enterprise Partnership
MDS	Maximum Design Scenario
MCA	Maritime and Coastguard Agency
MGN	Marine Guidance Note
MPA	Marine Protected Area
MW	Megawatts
NHS	National Health Service
NPS	National Policy Statement
NVQ	National Vocational Qualification
O&M	Operation and Maintenance
ODOW	Outer Dowsing Offshore Wind, trading name of GT R4 Limited
OFTO	Offshore Transmission Owner
ONS	Office for National Statistics
OnSS	Onshore Substation
ORBA	Offshore Restricted Build Area
ORCP	Offshore Reactive Compensation Platform
OSS	Offshore Substation
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SLVIA	Seascape, Landscape and Visual Impact Assessment

Acronym	Expanded name
SME	Small and Medium Enterprise
SPA	Special Protection Area
TCE	The Crown Estate
UK	United Kingdom

Terminology

Term	Definition
~~The Applicant~~	~~GT R4 Ltd. The Applicant making the application for a DCO. The Applicant is GT R4 Limited (a joint venture between Corio Generation, TotalEnergies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), TotalEnergies and GULF.~~
AfL array area	The area of the seabed awarded to GT R4 Ltd. through an Agreement for Lease (AfL) for the development of an offshore wind farm, as part of The Crown Estate's Offshore Wind Leasing Round 4.
Array area	The area offshore within which the generating station (including wind turbine generators (WTG) and inter array cables), offshore accommodation platforms, offshore transformer substations and associated cabling will be positioned, including the ORBA~~.~~
Baseline	The status of the environment at the time of assessment without the development in place.
Biodiversity Net Gain	An approach to development that leaves biodiversity in a measurably improved state than it was previously. Where a development has an impact on biodiversity, developers are encouraged to provide an increase in appropriate natural habitat and ecological features over and above that being affected, to ensure that the current loss of biodiversity through development will be halted and ecological networks can be restored.
Cumulative effects	The combined effect of the Project acting additively with the effects of other projects, on the same single receptor/resource.
Cumulative impact	Impacts that result from changes caused by other past, present or reasonably foreseeable actions together with the Project.
Deemed Marine Licence (dML)	A marine licence set out in a Schedule to the Development Consent Order and deemed to have been granted under Part 4 (marine licensing) of the Marine and Coastal Access Act 2009.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
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 sensitivity of the receptor, in accordance with defined significance criteria.
EIA Directive	European Union 2011/92/EU (as amended by Directive 2014/52/EU).
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
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 Regulations, including the publication of an Environmental Statement (ES).
Environmental Statement (ES)	The suite of documents that detail the processes and results of the EIA.
Evidence Plan	A voluntary process of stakeholder consultation with appropriate Expert Topic Groups (ETGs) that discusses and, where possible, agrees the detailed approach to the Environmental Impact Assessment (EIA) and information to support Habitats Regulations Assessment (HRA) for those

Term	Definition
	relevant topics included in the process, undertaken during the pre-application period.
Export cables	Cable which connects the Offshore Reactive Compensation Platform (ORCP) and Offshore Substations (OSS) with the Onshore Substation (OnSS) to transmit power from the wind farm to shore. Cable can be Onshore, landfall and Offshore.
Grid connection cable	Cable which connects the project Onshore Substation (OnSS) with the National Grid Substation.
Habitats Regulations Assessment (HRA)	A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of up to four stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures.
Haul Road	The track within the onshore ECC which the construction traffic would use to facilitate construction.
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.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Indicative Working Width	The indicative working width within the Onshore Export Cable Corridor (ECC), required for the construction of the onshore cable route.
Inter-array cables	Cable which connects the wind turbines to each other and to the offshore substation(s).
Interlink cables	Cable which connects the Offshore Substations (OSS) to one another.
Intertidal	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS)
Joint bays	An excavation formed with a buried concrete slab at sufficient depth to enable the jointing of high voltage power cables.
Landfall	The location at the land-sea interface where the offshore export cables and fibre optic cables will come ashore.
Link boxes	Underground metal chamber placed within a plastic and/or concrete pit where the metal sheaths between adjacent export cable sections are connected and earthed.
Maximum Design Scenario	The project design parameters, or a combination of project design parameters that are likely to result in the greatest potential for change in relation to each impact assessed
Mitigation	Mitigation measures are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
National Grid's OnSS	Onshore substation which is owned and operated by National Grid Electricity Transmission.
National Policy Statement (NPS)	A document setting out national policy against which proposals for Nationally Significant Infrastructure Projects (NSIPs) will be assessed and decided upon
Offshore Export Cable Corridor (ECC)	The Offshore Export Cable Corridor (Offshore ECC) is the area within the Order Limits within which the export cables running from the array to landfall will be situated.

Term	Definition
Offshore Restricted Build Area (ORBA)	The area within the array area, where no wind turbine generator, offshore transformer substation or offshore accommodation platform shall be erected.
Offshore Reactive Compensation Platform (ORCP)	A structure attached to the seabed by means of a foundation, with one or more decks ~~and a helicopter platform~~ (including bird deterrents) housing electrical reactors and switchgear for the purpose of the efficient transfer of power in the course of HVAC transmission by providing reactive compensation
Offshore Substation (OSS)	A structure attached to the seabed by means of a foundation, with one or more decks and a helicopter platform (including bird deterrents), containing— (a) electrical equipment required to switch, transform, convert electricity generated at the wind turbine generators to a higher voltage and provide reactive power compensation; and (b) housing accommodation, storage, workshop auxiliary equipment, radar and facilities for operating, maintaining and controlling the substation or wind turbine generators
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor (Onshore ECC) is the area within which the export cables running from the landfall to the onshore substation will be situated.
Onshore Infrastructure	The combined name for all onshore infrastructure associated with the Project from landfall to grid connection.
Onshore substation (OnSS)	The Project's onshore HVAC substation, containing electrical equipment, control buildings, lightning protection masts, communications masts, access, fencing and other associated equipment, structures or buildings; to enable connection to the National Grid
Outer Dowsing Offshore Wind (ODOW)	The Project.
Order Limits	The area subject to the application for development consent, The limits shown on the works plans within which the Project may be carried out.
The Planning Inspectorate	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
Pre-construction and post-construction	The phases of the Project before and after construction takes place.
Preliminary Environmental Information Report (PEIR)	The PEIR was written in the style of a draft Environmental Statement (ES) and provided information to support and inform the statutory consultation process during the pre-application phase.
The Project	Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure.
Project Design Envelope	A description of the range of possible elements that make up the Project's design options under consideration, as set out in detail in the project description. This envelope is used to define the Project 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.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Statutory consultee	Organisations that are required to be consulted by the Applicant, the Local Planning Authorities and/or The Planning Inspectorate during the pre-application and/or examination phases, and who also have a statutory

Term	Definition
	responsibility in some form that may be relevant to the Project and the DCO application. This includes those bodies and interests prescribed under Section 42 of the Planning Act 2008.
Study Area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.
Subsea	Subsea comprises everything existing or occurring below the surface of the sea.
The Applicant	GTR4 Limited (a joint venture between Corio Generation (and its affiliates), TotalEnergies and Gulf Energy Development), trading as Outer Dowsing Offshore Wind
Transboundary impacts	Transboundary effects arise when impacts from the development within one European Economic Area (EEA) state affects the environment of another EEA state(s)
Transition Joint Bay (TJBs)	The offshore and onshore cable circuits are jointed on the landward side of the sea defences/beach in a Transition Joint Bay (TJB). The TJB is an underground chamber constructed of reinforced concrete which provides a secure and stable environment for the cable.
Trenched technique	Trenching is a construction excavation technique that involves digging a narrow trench in the ground for the installation, maintenance, or inspection of pipelines, conduits, or cables.
Trenchless technique	Trenchless technology is an underground construction method of installing, repairing and renewing underground pipes, ducts and cables using techniques which minimize or eliminate the need for excavation. Trenchless technologies involve methods of new pipe installation with minimum surface and environmental disruptions. These techniques may include Horizontal Directional Drilling (HDD), thrust boring, auger boring, and pipe ramming, which allow ducts to be installed under an obstruction without breaking open the ground and digging a trench.
Wind turbine generator (WTG)	A structure comprising a tower, rotor with three blades connected at the hub, nacelle and ancillary electrical and other equipment which may include J-tube(s), transition piece, access and rest platforms, access ladders, boat access systems, corrosion protection systems, fenders and maintenance equipment, helicopter landing facilities and other associated equipment, fixed to a foundation

Reference Documentation

Document Number	Title
5.1	Consultation Report
6.1.3	Project Description
6.1.6	Technical Consultation
6.1.14	Commercial Fisheries
6.1.15	Shipping and Navigation
6.1.17	Seascape, Landscape and Visual Impact Assessment
6.1.18	Marine Infrastructure and Other users
6.1.25	Land Use
6.1.26	Noise and Vibration
6.1.27	Traffic and Transport
6.1.28	Landscape and Visual Assessment
6.3.5.3	Onshore Cumulative Effects Approach

29 Socio-Economic Characteristics

29.1 Introduction

1. This chapter of the Environmental Statement (ES) presents the Environmental Impact Assessment (EIA) process for the potential impacts of Outer Dowsing Offshore Wind ("the Project") on Socio-Economics, Tourism and Recreation.
2. GT R4 Limited (trading as Outer Dowsing Offshore Wind) hereafter referred to as the 'Applicant', is proposing to develop the Project. The Project will be located approximately 54km from the Lincolnshire coastline in the southern North Sea. The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm), export cables to landfall, onshore cables, connection to the electricity transmission network, and ancillary and associated development (see Volume 1, Chapter 3: Project Description (document reference 6.1.3) for full details).
3. This chapter should be read alongside the following chapters, which are presented in volume 1 of the ES:
   - Chapter 14: Commercial Fisheries (document reference 6.1.14);
   - Chapter 15: Shipping and Navigation (document reference 6.1.15);
   - Volume 1, Chapter 17: Seascape, Landscape and Visual (document reference 6.1.17);
   - Volume 1, Chapter 18: Marine Infrastructure and Other Users (document reference 6.1.18);
   - Volume 1, Chapter 25: Land Use (document reference 6.1.25);
   - Volume 1, Chapter 26: Noise and Vibration (document reference 6.1.26);
   - Volume 1, Chapter 27: Traffic and Transport (document reference 6.1.27); and
   - Volume 1 Chapter 28: Landscape and Visual Assessment (document reference 6.1.28).
4. Additional information to support the socio-economics, tourism and recreation assessment includes a methodological statement on the approach followed to estimate the economic benefits from the Project.

29.2 Statutory and Policy Context

5. The assessment of potential impacts on socio-economics, tourism and recreation has been made with specific reference to the relevant National Policy Statements (NPS). These are the principal decision-making documents for Nationally Significant Infrastructure Projects (NSIPs). Those relevant to the Project are:
   - Overarching NPS for Energy (EN-1) (Department of Energy Security & Net Zero (DESNZ) 2023a); and
   - NPS for Renewable Energy Infrastructure (EN-3) (DESNZ 2023b)

6. The specific assessment requirements for socio-economics, tourism and recreation, as detailed in the NPS, are summarised in Table 29.1 together with an indication of the section of this chapter where each is addressed.

Table 29.1 Legislation and policy context

Legislation and policy context	Key provisions	Section where comment addressed
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.3 of the 2023 NPS EN-1 strongly advises that Applicants engage with relevant local authorities during the early stages of the project development to gain a better understanding of local or regional issues and opportunities	The feedback from the consultation programme and members of the Expert Topic Groups, including relevant local authorities, is outlined in Section 29.3
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.4 of the 2023 NPS EN-1 advises that Applicants may wish to provide information on the sustainability of the jobs created, including where they will help to develop the skills needed for the United Kingdom's (UK) transition to Net Zero.	Sustainability of jobs is considered alongside the impact on employment from the Project in Section 29.8.
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.4 of the 2023 NPS EN-1 advises that the assessment should consider the contribution to the development of low-carbon industries at the local and regional level as well as nationally.	The contribution to the development of low-carbon industries in each of the study areas is considered in Section 1.8.
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.4 of the 2023 NPS EN-1 advises that the assessment should consider any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains.	The impacts on Gross Value Added (GVA) and employment include indirect/supply chain impacts, as considered in Section 29.8.
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.6 of the 2023 NPS EN-1 advises that Applicants are encouraged, where possible, to ensure local	The Applicant will develop a Procurement Strategy that will consider the role of local suppliers and contribution to

Legislation and policy context	Key provisions	Section where comment addressed
	suppliers are considered in any supply chain.	skills development. Further details on proactively engaging with local economic development stakeholders is provided in Section 29.6 Embedded Mitigation.
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.4 of 2023 NPS EN-1 advises that Applicants consider any effects local services and infrastructure, including the provision of educational and visitor facilities.	Effects on local services and social infrastructure, such as schools and health services are considered in Section 29.8.
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.4 of 2023 NPS EN-1 advises that Applicants consider any effects (positive or negative) on tourism and other users of the area impacted.	Effects on tourism are considered in Section 29.8.
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.4 of the 2023 NPS EN-1 advises that Applicants 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 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	Cumulative effects are considered in Section 29.9
National Policy Statement for Energy (NPS EN-1) (2023)	Paragraph 5.13.7 of the 2023 NPS EN-1 advises that Applicants should also consider developing accommodation strategies where appropriate, especially during construction and decommissioning phases, that would include for the need to provide temporary	Potential impacts on accommodation demand are considered in Section 29.8 during the construction phase.

Legislation and policy context	Key provisions	Section where comment addressed
	accommodation for construction workers if required.	
National Policy Statement for Energy (NPS EN-3) (2023)	Paragraph 2.8.168 of the 2023 NPS EN-3 states that Offshore wind farms and offshore transmission will occupy an area of the sea or sea bed. For offshore wind farms in particular it is inevitable that there will be an impact on navigation in and around the area of the site. This is relevant to both commercial and recreational users of the sea who may be affected by disruption or economic loss because of the proposed offshore wind farm and/or offshore transmission	Effects on marine recreation are considered in Section 29.8.

29.3 Consultation

7. Consultation is a key part of the Development Consent Order (DCO) application process. Consultation regarding Socioeconomics, Tourism and Recreation has been conducted through the Evidence Plan Process (EPP), Expert Technical Group (ETG) meetings, the EIA scoping process (Outer Dowsing Offshore Wind, 2022) and the statutory pre-application consultation process informed by the Preliminary Environmental Information Report (PEIR) (Outer Dowsing Offshore Wind, 2023). An overview of the Project's technical consultation process is presented within Volume 1, Chapter 6: Technical Consultation (document reference 6.1.6) and wider consultation is presented in the Consultation Report (document reference 5.1).
8. A summary of the key issues raised during consultation to date and specific to Socio-economics, Tourism and Recreation is outlined in Table 29.2 below, together with how these issues have been considered in the production of this ES.

Table 29.2 Summary of Consultation relating to Socio-economics, Tourism and Recreation

Date	Comment	Section where comment addressed
Scoping		
09/09/22 Scoping Opinion	The Planning Inspectorate stated that the ES should include an assessment of demographics and service demands during decommissioning, unless a robust justification be provided to demonstrate this is not required.	Decommissioning impacts, including demographic and service demands are addressed in Section 29.8.4
09/09/2022 Scoping Opinion	The Planning Inspectorate stated that the ES should assess impacts during the decommissioning phase or provide appropriate justification as to why this assessment is not required.	Decommissioning impacts are addressed in Section 29.8.4.
09/09/2022 Scoping Opinion	The Planning Inspectorate agrees that transboundary effects during all phases can be scoped out, given the spatial extent of effects related to economic and supply chain assessments.	Transboundary effects have been scoped out of the assessment for all phases.
09/09/2022 Scoping Opinion	The Planning Inspectorate agrees that demographic and service demand impacts, including long term housing/accommodation, can be scoped out during the Operations and Maintenance (O&M) phase.	Demographic and Service Demand effects have been Scoped Out of the assessment for the O&M Phase.
Section 42		
25/01/2023 Expert Technical Group	Queries on whether in the contracts awarded there will be support for training and apprentices	A procurement Strategy is being developed outside the Scope of the ES.
21/07/2023 Section 42 Response	(Freiston Parish Council - Boston District Council) The impact assessment has not properly considered potential effects on food security.	The impacts on food availability, specifically the UK vegetable market are considered in Section 29.8.2. This considers the sensitivity of UK consumption and prices to changes in domestic production.
21/07/2023 Section 42 Response	(Huttoft Parish Council – East Lindsey Council) Concerns about the impact on tourism, there are several caravan and camping sites withing the scoping area that could be detrimentally affected… especially in an area where opportunities are limited in other areas of work.	Camping and caravan sites have been considered as tourism asset receptors and assessed within Section 29.8.2
21/07/2023	(East Lindsey District Council) Consider Core Strategy and Settlement Proposals 2018	East Lindsey Local Plan Core Strategy is considered as part of

Date	Comment	Section where comment addressed
Section 42 Response		the Strategic baseline in Section 29.4.3
21/07/2023 Section 42 Response	(Lincolnshire County Council) Keen to see benefits to the local host communities and economy explored when the grid connection point and cable route corridor has been determined, particularly with regards to local energy. The impact of highway works during tourism season needs to be considered and agreed in the future.	The impact of traffic and transport effects on tourism and recreation assets are considered in Section 29.8.2.

29.4 Baseline Environment

29.4.1 Study Areas

Onshore

~~8.~~9. The sensitivity and magnitude of socio-economic impacts are influenced by the size of the receptors that experience these effects. The magnitude of any impact is measured relative to the size of the receptor, therefore it is important to gain an understanding of impact at as local a level as possible.

~~9.~~10. The onshore study areas for the assessment of effects on employment and economy onshore have been defined in line with the guidance on identification of 'local areas' for the offshore developments published by the Scottish Government (Scottish Government, 2022). Although this guidance will not apply in England, the principles for identifying the areas are universal and can be applied anywhere. The core principle of this guidance is that the 'local areas' identified should be specific to the socio-economic impact identified. Therefore, the study areas used for the assessment of economic impacts, such as impacts on employment and Gross Value Added (GVA) generated, are different from those used to assess the impacts on tourism and recreational assets.

~~10.~~11. Economic impacts will occur across a wider area than the area of the onshore export cable route and onshore substation site (OnSS). Impacts will also be centred around other areas such as the potential ports used for construction and operations. Therefore, economic impacts have been quantified across three onshore study areas.

- The Local Economic Area (LEA), defined as the combined geographies of the Greater Lincolnshire Local Enterprise Partnership (LEP) and the Hull and East Yorkshire LEP areas. This area includes all the potential sites for onshore infrastructure construction and the possible location of the key port locations in the UK.
- The Regional Area, defined as the combined English regions of Yorkshire and the Humber and East Midlands.
- The economic impacts will also be assessed at the level of the UK.

~~11.~~12. The Local Tourism and Recreation Area (LTRA) is defined based on the potential locations of activities that could have an impact on tourism and recreation assets. For tourism and recreation, the onshore study area is smaller than the LEA because it is determined by the geographic coverage of likely environmental effects that could impact on tourism and recreation assets. It has therefore been defined by the local administrative areas that contain the onshore scoping boundary. These are the local authority areas of:

- Boston Borough Council;
- East Lindsey District Council; and
- South Holland District Council.

~~12.~~13. At this stage it is not possible to identify specific locations that will support the offshore construction of the Project. Support locations for offshore construction and operation will depend on commercial decisions to be made at a later date, which in turn will be influenced by several economic, technological and other factors.

~~13.~~14. In summary, the four study areas are:

- The LTRA – defined as the combined local authority areas of South Holland, East Lindsey and Boston.
- The LEA – defined as the combined LEPs of Greater Lincolnshire and Hull and East Yorkshire;
- The Regional Area – defined as the combined regions of England of Yorkshire and the Humber and the East Midlands; and
- The UK.

~~14.~~15. It should be noted that the study areas are inclusive, and therefore the impacts reported for the UK include the impacts that occur in the Regional Area and the LEA.

Marine Recreation Study Area

~~15.~~16. The offshore recreation study area has been defined as the Project's offshore export cable corridor (ECC), the offshore array, up to two Artificial Nesting Structures and Biogenic reef compensation areas and a 15km buffer around these, as shown in Figure 29.3. Recreational activity such as recreational sailing and boating, recreational angling, scuba diving and other / general recreational activities are described within this study area.

29.4.2 Data Sources

~~16.~~17. The baseline environment for the study areas identified is described below and covers:

- The Strategic Context;
- The Socio-Economic Baseline;
- The Onshore Tourism and Recreation Baseline; and
- Marine Recreation Assets.

~~17.~~18. The study areas that are covered by each element of the baseline environment are outlined in Table 29.3.

Table 29.3: Coverage of the baseline environment by study area

Item	Marine Recreation Area	LTRA	LEA	Regional Area	UK
Strategic Context	-	-	Yes	Yes	Yes
Socio-economic baseline	-	Yes	Yes	Yes	Yes
Onshore Tourism and Recreation baseline	-	Yes	-	-	-
Marine Recreation Baseline	Yes	-	-	-	-

~~18.~~19. The sources of information used to generate this baseline are described in Table 29.4.

Table 29.4: Key sources of information for Socio-economics, Tourism and Recreation

Source	Summary	Spatial Coverage of Source/Relevance by Study Area
Strategic		
Humber Local Enterprise Partnership (LEP) (2020) Humber Local Energy Strategy	Review of the Humber Strategic Economic Plan July 2016 and Strategic Economic Plan 2014-2020 provide an overview of the main demographic, economic and employment characteristics of the Study Area	LEA
Hull and East Yorkshire Local Enterprise Partnership (HEY LEP) (2021) Economic Growth and Workforce Wellbeing Strategy 2021-26	Review of the HEY LEP Economic Growth and Workforce Wellbeing Strategy to provide an overview of the main economic, demographic and employment characteristics of the Study Area	LEA
Greater Lincolnshire LEP (2021) Local Industrial Strategy	Review of the Greater Lincolnshire LEP 2021 Local Industrial Strategy setting out the growth opportunities in manufacturing and engineering in the area and the area's existing business base for offshore wind manufacturing	LEA
UK Government (2020a) UK Offshore Wind Sector Deal	Review of the UK Government's 2020 Offshore Wind Sector Deal supporting the development of offshore wind in the UK and the target for 2030	UK
East Lindsey Council (2018) Local Plan Core Strategy	A local plan setting out the strategic priorities for the area and policies for the growth and development across the district of East Lindsey	LEA/LTRA
Socio-economic		
NHS Digital (2023) General Practice Workforce, 30 June 2023	Information of the number of GPs in each Integrated Care Board	LEA, Regional Area, UK

Source	Summary	Spatial Coverage of Source/Relevance by Study Area
NHS Digital (2023) Patients registered at a GP Practice 30 June 2023	Information of the number of patients registered with GPs in each Integrated Care Board	LEA, Regional Area, UK
ONS (2021a) Population Estimates	Demographic data including trends	LTRA, LEA, Regional Area, UK
ONS (2021b), Population Projections, 2019-2043	Demographic projections covering the next 20 years	LTRA, LEA, Regional Area, UK
ONS (2021c), Annual Population Survey	Data on current and previous labour market conditions, including economic activity, qualifications and occupations, and households with dependent children	LTRA, LEA, Regional Area, UK
ONS (2021d), Annual Survey of Hours and Earnings	Data on current and previous work-based income distribution and hours worked	LTRA, LEA, Regional Area, UK
ONS (2021e) Business Register and Employment Survey	Current and previous levels of employment activity by sector and employment type – e.g., full and part time employment	LTRA, LEA, Regional Area, UK
ONS (2021f), House Price Data: Quarterly Tables	Data on current and previous real estate markets, including sale values and number of sales	LTRA, LEA, Regional Area, UK
ONS (2021h) Subnational estimates of dwellings by Tenure, England	Data on current and previous residential dwellings by type and ownership	LTRA, LEA, Regional Area, UK
Scottish Government (2022), Housing statistics: Stock by tenure	Information on the housing stock in Scotland	UK
UK Government (2021), Education and Training Statistics for the UK	Information on school numbers and pupil teacher ratios by UK region.	Regional Area, UK
UK Parliament (2022), Local authority data: housing supply	Information on the housing stock in England	LTRA, LEA, Regional Area, UK
Onshore Recreation and Tourism		
Aitchison (2004) Fullabrook Wind Farm proposal, North Devon - evidence gathering of the impact of windfarms on visitor numbers and tourist experience	Study of the impact of windfarms on the tourism economy of North Devon	LTRA
BiGGAR Economics (2021), Wind Farms & Tourism Trends in	Study of the impact of windfarms on the tourism economy of Scotland	LTRA

Source	Summary	Spatial Coverage of Source/Relevance by Study Area
Scotland: Evidence from 44 Wind Farms		
BiGGAR Economics (2020), East Anglia ONE North and East Anglia TWO Offshore Wind Farms: Tourism Impact Review	Study of the impact on tourism of two offshore windfarms near the Suffolk Coast Area	LTRA
BVA BDRV (2021) Visitor Attraction Trends in England 2020 Full Report	Data from the Survey of Visits to Visitor Attractions, which provides a comprehensive England-wide analysis of trends plus visitor data for individual attractions	LTRA, Regional Area, UK
Glasgow Caledonian University/Moffat Centre (2008), The Economic Impacts of Wind Farms on Scottish Tourism	Study of the impact of windfarms on the tourism economy of Scotland.	LTRA
Kantar TNS (2020), Great Britain Day Visitor Survey 2019 Annual Report	Data on current and previous trends in domestic day visitor tourism, including area visited, main reasons for visiting and expenditure per trip	LTRA, Regional Area, UK
Kantar (2020), The Great Britain Tourist Survey, 2019 Annual Report	Data on current and previous trends in domestic overnight visitor tourism, including area visited, main reasons for visiting and expenditure per trip	LTRA, Regional Area, UK
NFO (2003), Investigation into the potential impact of wind farms on tourism in Wales	Study of tourism perceptions in Wales	LTRA
NISRA (2020), Northern Ireland Annual Tourism Statistics 2019	Information on the volume of tourism and spending levels of tourists in Northern Ireland	UK
Northumbria University (2014), Evaluation of the impacts of onshore wind farms on tourism	Study of the impact of windfarms on the tourism economy of Northumberland	LTRA
Online searches	Identification of tourism and recreational assets within the LTRA	LTRA
Regeneris and The Tourism Company (2014), Study into the Potential Economic Impact of Wind Farms and Associated Grid	Study of the impact of windfarms on the tourism economy of Wales	LTRA

Source	Summary	Spatial Coverage of Source/Relevance by Study Area
Infrastructure on the Welsh Tourism Sector		
Marine Recreation		
RYA Coastal Atlas (2021)	Marine recreation sailing and boating locations and intensity	Marine Recreation Area
MMO Mapping recreational sea anglers in English waters (MMO1163 2020)	Recreational angling	Marine Recreation Area
Seasearch scuba diving (2021)	Scuba dive records	Marine Recreation Area
MMO High Priority Non-Licensable Activities in MPAs (MMO1243 2021)	General marine recreation activities, differentiated by multiple types	Marine Recreation Area

29.4.3 Existing Environment

Strategic Context

East Lindsey Local Plan Core Strategy

~~19.~~20. Published in 2018, East Lindsey Local Plan Core Strategy (East Lindsey District Council, 2018) outlines the overarching ambition of the area to be a district with:

- A network of thriving, safer and healthy sustainable communities, where people can enjoy a high quality of life and an increased sense of well-being and where new development simultaneously addresses the needs of the economy, communities and the environment;
- Quality affordable and open market housing to try and meet the differing needs of the district's residents;
- A growing and diversified economy that not only builds on, and extends the important agriculture and tourism base, but supports the creation of all types of employment;
- A commitment to address the issues of deprivation and rural isolation to make an inclusive, equal and diverse district;
- A high-quality environment that makes the most of its special qualities, particularly the coast, the Lincolnshire Wolds and the historic market towns; and
- A commitment to tackling the causes and effects of global climate change through local action.

~~20.~~21. The Core Strategy highlights that the district has a low percentage of full-time employment and a high level of seasonal agricultural and tourism employment. There is a high level of inward migration of elderly, economically inactive and infirm people which, combined with high outward migration of young adults, is placing pressure on existing services on the coast.

Humber Local Energy Strategy

~~21.~~22. Published in 2020, the Humber Local Energy Strategy (Humber Local Enterprise Partnership, 2019) outlines two key objectives for the region:

- To ensure the Humber region plays a leading role in the UK's decarbonisation efforts by making targeted interventions to reduce emissions in the electricity, heat and transport sectors; and
- To foster clean energy growth by supporting public and private sector investments in novel low carbon technologies to take advantage of the opportunities presented by the emerging low carbon economy.

~~22.~~23. The strategy highlights the Humber's pivotal role in the transition from fossil fuels to renewables, with the natural resources of the area already supporting the world's biggest offshore windfarm located 75 miles off the coast. The document emphasises that, while the offshore wind sector already plays a significant role in the economy of the Humber, taking advantage of the possible benefits of the sector requires support by business-friendly policies and investment from local municipalities and central government. The strategy outlines four activities for the LEP with the aim of supporting the expansion of the offshore wind cluster and maintaining the Humber as a key national hub for offshore wind manufacture and operations:

- To facilitate skill development, job security and creation through the existing supply chain, higher education and training providers;
- To build on existing capabilities, competencies, and infrastructure to ensure the offshore wind ecosystem becomes more efficient;
- To undertake campaigns aimed at attracting new inward investment into the sector and investment in innovation; and
- To offer services and expertise to other regions in the UK and internationally.

~~23.~~24. The Project has the potential to support the development of the offshore wind sector in the Humber, expanding the offshore wind cluster and building on the region's expertise in the sector.

Greater Lincolnshire LEP Local Industrial Strategy

~~24.~~25. In January 2021, Greater Lincolnshire LEP published a draft Local Industrial Strategy (Greater Lincolnshire LEP, 2021) which sets out the opportunities for growth within the LEP area and how the LEP plans to maximise the benefits of these opportunities. The strategy highlights the region's established and emerging clusters in agri-food, ports, logistics and defence, and energy and new fuels, which present opportunities for Greater Lincolnshire to build on the area's manufacturing and engineering base.

~~25.~~26. The strategy highlights that, as a result of the existing offshore wind clusters in proximity to the area, offshore wind manufacturing, installation, O&M businesses now have established businesses in the region, enabling the expansion of the offshore wind sector in the area to continue to support the creation of local sustainable jobs and the development of the local economy. Offshore wind developments are creating sustainable jobs in the area and supporting the local economy as the offshore wind sector grows.

~~26.~~27. The strategy particularly highlights the opportunities the offshore wind sector presents for Greater Grimsby, which currently has low wages and productivity, as well as high unemployment and challenges retaining businesses and skilled workers in the area. The strategy highlights how the development of the offshore wind sector could support the economic development through establishing offshore wind O&M businesses in the area.

~~27.~~28. The Project has the potential to contribute to the expansion of the offshore wind sector in proximity to Greater Lincolnshire by creating sustainable job opportunities in sectors which are firmly established in the area, such as offshore wind manufacturing, installation, O&M, and in doing so, continue to develop the economic contribution the offshore wind sector has already made to local areas of Lincolnshire.

Hull and East Yorkshire Economic Strategy

~~28.~~29. In 2021 Hull and East Yorkshire LEP (HEY LEP) published its Economic Growth and Workforce Wellbeing Strategy for 2021 to 2026 (HEY LEP, 2021). The strategy considers some of the challenges that the region has faced regarding the impact of the Covid-19 pandemic and the implications of the UK leaving the EU on the maritime and trading activities. This strategy outlines four priorities for the area, namely:

- A productive and innovative economy;
- A Net Zero, clean growth economy;
- Skilled, healthy and inclusive economy; and
- Attractive, competitive and resilient locations.

~~29.~~30. Offshore wind is discussed as an important development sector throughout the strategy. This includes:

- The sector is discussed within the UK context, in particular the Sixth Carbon Budget, which highlights the connecting of economic and environmental policy;
- The reputation and skills that already exist in the area as a result of the development of offshore wind to date are considered a strength of the area, with opportunities to export both goods and services to a growing global market;
- Innovation in the offshore wind sector, particularly during the O&M phase, is being driven by developments in the area, including the Aura Innovation Centre and the wider conglomeration of offshore O&M facilities in the area; and
- The location of the Humber and its ports are a comparative advantage for the development of both manufacturing facilities and further installation activity as the whole southern North Sea is within easy reach.

~~30.~~31. The economic opportunities from the development of the offshore wind sector, and the wider Net Zero ambitions, are considered to be critical for the economic future of the area. To support this, the LEP will be progressing actions within the skills and employment strategies and the industrial cluster plan so that organisation and individuals are able to benefit from these opportunities.

UK Offshore Wind Sector Deal

~~31.~~32. The Offshore Wind Sector Deal (UK Government, 2020a), updated by the UK government in 2020, sets out the government's aim to support the development of offshore wind energy generation in the UK, making the sector a significant part of a low-cost, low-carbon flexible grid system. The deal also emphasises how UK companies can benefit from the opportunities presented by the expansion of the offshore wind sector, enhancing the competitiveness of UK firms internationally and sustaining the UK's role as a global leader in offshore wind generation.

~~32.~~33. The deal highlights that some estimates suggest that offshore wind installed capacity globally will grow by 17% annually from 22GW to 154GW in 2030, which could mean the UK contributing up to 30GW of generating capacity. This ambition has since been revised in the British Energy Security Strategy (UK Government, 2022), which outlined an ambition for achieving 50GW of offshore wind generating capacity by 2030. The government aims to reach this capacity in a sustainable, timely way, and commits to working with the offshore wind sector and wider stakeholders to deliver the expansion of the sector, addressing strategic deployment issues, transmission issues and environmental impacts. Reaching this level of capacity could support up to 27,000 jobs in the UK, while the sector will work with government, existing institutions, and universities to increase job mobility between energy sectors, increase apprenticeship opportunities and coordinate local efforts, further developing the benefits to the UK economy.

~~33.~~34. The deal emphasises the Humber as a majorly significant region to the development of the sector in the UK, as the region already supports a windfarm cluster with a pre-existing manufacturing base, enabling economies of scale and increased productivity which could drive innovation and improve competitiveness in the sector.

~~34.~~35. The Project would contribute to the expansion of the offshore wind sector in the UK, developing the ambition of reaching 50GW of generating capacity by 2030. The Project has the potential to also contribute to the development of the offshore wind sector in the Humber, supporting the region's existing expertise and developing competitiveness in the sectors supported by offshore wind.

Socio-Economic Baseline

~~35.~~36. This section outlines the key properties of the socio-economic receptors that can be used to inform any assessment of their sensitivity, to put any impacts into context and to understand the magnitude of these impacts. In this way, the baseline supports the assessment of the significance of the potential socio-economic impacts that have been scoped into the assessment.

~~36.~~37. The analysis draws on the latest available data. The majority of these data sources are published annually and therefore this baseline, and subsequent assessments of significance, is relevant at the time of writing.

Population

~~37.~~38. In 2020, the LTRA had a total population of 0.3 million, accounting for 3.0% of the population of the regional area (Yorkshire & Humber and the East Midlands). Of the population

of the LTRA, 57.6% were aged between 16 and 64. This is lower than the equivalent share in the regional area (62.3%) and the UK as a whole (62.9%).

~~38.~~39. People aged under 16 accounted for 16.2% of the population of the LTRA, lower than the regional area (18.3%) and the UK (18.4%).

~~39.~~40. The LEA, comprised of the Hull and East Yorkshire LEP area and the Greater Lincolnshire LEP area, had a total population of 1.7 million. Of the population of this area, 60.2% were aged between 16-64, also lower than in both the regional area and the UK as a whole. People aged under 16 accounted for 17.2% of the population, while people aged 65 and over accounted for 22.5%. Similar to the LTRA, the lower than average share of the working age population suggests that the local areas may lack opportunities for workers.

Table 29.5: Population, 2021

	LTRA	LEA	Regional Area	UK
Total	309,300	1,747,600	10,361,500	67,081,200
0-15	16.2%	17.2%	18.3%	18.4%
16-64	57.6%	60.2%	62.3%	62.9%
65+	26.2%	22.6%	19.4%	18.7%

Source: ONS (2021a), Population Estimates 2021

Population Projections

~~40.~~41. The Office for National Statistics (ONS) also produces population projections based on recent trends in demographics, migration, fertility and mortality. In 2018, the population of the LTRA was 304,087. It is estimated that the total population of the area will increase by 16.6% to 354,605 in 2043. This projected increase is higher than that of the LEA, where it is expected that the population will increase by 8.8% by 2043, from 2,443,751 to 2,658,521. The projected increase in the population of the LTRA is also higher than that of the regional area (9.8%), as well as the UK as a whole (7.6%), while the projected rate of increase of the LEA is lower than the regional area but larger than the UK as a whole.

~~41.~~42. The proportion of residents in the LTRA aged 16-64 is projected to decrease over time, with the share of working age population falling from 57.2% in 2018 to 53.0% in 2043. The LEA is projected to experience a similar trend in the share of the working age population, falling from 60.2% to 55.4%. This is equivalent to 3,500 less people of working age in the LEA. The fall in the share of working age population is also projected to occur in both the regional area (from 62.3% to 58.6%) and the UK as a whole (62.9% to 60.3%).

~~42.~~43. Over the same period, the share of the LTRA population accounted for by people aged 65+ is projected to increase, from 26.0% to 32.0%. Similarly, the share of this demographic in the LEA is projected to increase from 22.6% and 29.1%. The shares of the population accounted for by people aged over 64 in both local areas in 2043 are projected to be higher than that of the regional area (24.2%). By 2043, the share of people aged 65 and over in the UK (23.9%) is projected to be consistent with the LTRA, but higher than that of the LEA.

Table 29.6: Population Projections, 2021 - 2043

	LTRA		LEA		Regional Area		UK	
	2018	2043	2018	2043	2018	2043	2018	2043
Total (thousands)	304	355	2,444	2,659	10,362	11,381	67,026	72,121
0-15	16.8%	15.0%	17.2%	15.7%	18.3%	17.3%	18.4%	15.9%
16-64	57.2%	53.0%	60.2%	55.2%	62.3%	58.6%	62.9%	60.3%
65+	26.0%	32.0%	22.6%	29.1%	19.4%	24.2%	18.7%	23.9%

Source: ONS (2021b), Population Projections, 2019-2043

Economic Activity

~~43.~~44. The LTRA has a less active labour market than the UK as a whole. In particular, the economic activity rate (a measure of those who are either in work or looking for work) is 3% lower than the UK as a whole. The median level of pay is £3,000 less than the national average and the number of jobs in the area has not grown as fast as the UK average.

~~44.~~45. The LEA also has a lower rate of economic activity than the UK as a whole, however the difference is less than 2% and the unemployment rate is lower. The median level of pay is less than the national average but is similar to the wider region. The number of jobs in the area has grown at 63% of the rate of the wider UK since 2013.

Table 29.7: Economic Indicators, 2023

xx	LTRA	LEA	Regional Area	UK
Economically Active %	74.9%	76.6%	77.4%	78.3%
Unemployment Rate	-	2.3%	3.4%	3.6%
Median Annual Gross Wage (resident)*	£24,530	£25,541	£26,113	£27,756
Jobs Growth (2013 – 2023)	6.4%	6.0%	7.7%	9.5%

*Note: unemployment rate cannot be estimated for LTRA since the group sample size is zero or disclosive. Source: Source: ONS (2023c), Annual Population Survey 2023. *ONS (2023d), Annual Survey of Hours and Earnings – resident analysis, data for 2022.*

Industrial Structure

~~45.~~46. The relative distribution of employment by sector in each of the study areas gives an indication of the strengths, weaknesses and any structural dependencies within these economies.

~~46.~~47. The focus of the assessment in the LTRA is on the tourism economy and any impacts on individual tourism and recreation assets. The sectors which are of particular relevance to this assessment are those linked to the tourism economy, including;

- Accommodation and food service activities,
- Arts, entertainment and recreation; and
- Wholesale and retail trade.

47.48. These sectors all employed a greater share of the workforce in the LTRA than the UK average. As with the wider UK economy, the wholesale and retail trade employed the largest number of people in the LTRA, accounting for 18.6% of employment. Accommodation and food service activities employed 9.1% of the workforce in the LTRA, which is 1.7% more than the UK average. The level of employment in the arts, entertainment and recreation was also higher but the difference was less than 1%.

48.49. In the LEA, the focus of the assessment is the ability of the area to benefit from supply chain opportunities that would be presented by the Project. The sectors which are of particular relevance to this assessment are those linked to the offshore wind sector, including;

- Construction;
- Manufacturing;
- Professional, scientific and technical services; and
- Transportation and Storage.

49.50. The LEA has particular strengths in the manufacturing sector, which employs twice as big a share of the workforce in this area than the UK average. The construction sector accounted for 5.3% of employment, which was larger than the UK average of 5.0%. The professional, scientific and technical activities sector is less represented within the LEA and accounts for 4.7% of the workforce compared to 8.8% across the UK as a whole.

Table 29.8: Industrial Structure for all study areas, 2021

	LTRA	LEA	Regional Area	UK
Wholesale and retail trade; repair of motor vehicles and motorcycles	18.6%	15.3%	14.8%	14.4%
Manufacturing	12.6%	14.9%	11.5%	7.5%
Human health and social work activities	12.0%	14.4%	13.9%	13.4%
Education	6.1%	8.4%	9.0%	8.5%
Administrative and support service activities	11.5%	7.7%	8.3%	8.7%
Accommodation and food service activities	9.1%	7.3%	6.9%	7.4%
Transportation and storage	5.6%	5.4%	6.0%	5.0%
Construction	4.5%	5.3%	4.7%	5.0%
Professional, scientific and technical activities	2.9%	4.7%	6.7%	8.8%
Public administration and defence; compulsory social security	1.9%	3.9%	4.2%	4.5%
Agriculture, forestry and fishing	7.3%	3.3%	1.6%	1.5%
Arts, entertainment and recreation	2.5%	2.2%	2.3%	2.3%
Information and communication	1.0%	2.0%	3.0%	4.3%
Other service activities	1.6%	2.0%	2.0%	2.0%
Real estate activities	1.0%	1.3%	1.5%	1.9%

	LTRA	LEA	Regional Area	UK
Water supply; sewerage, waste management and remediation activities	0.8%	0.9%	0.7%	0.7%
Financial and insurance activities	0.7%	0.8%	2.3%	3.5%
Electricity, gas, steam and air conditioning supply	0.2%	0.2%	0.5%	0.4%
Mining and quarrying	0.1%	0.1%	0.1%	0.1%
Total Jobs	126,600	741,900	4,721,700	32,172,300

Source: ONS (2021e), Business Register and Employment Survey 2022

Gross Value Added

~~50.~~51. The Office of National Statistics (ONS) produce estimates for the Local Enterprise Partnership areas, which make up the LEA. The latest publication estimated that in 2021, the LEA generated £39.4 billion GVA. This is 37% higher than in 2011 when the economy of the LEA generated £28.7 billion GVA. The economy of the LEA has grown faster than both the wider Regional Area, which grew by 36% in this decade, and lower than the wider UK which grew by 38%.

Table 29.9: Gross Value Added(Balanced) at current prices (£bn)

	LEA	Regional Area	UK
2011	28.7	184.5	1,469.7
2021	39.4	251.8	2,034.9
Change (2011 – 2021)	37%	36%	38%

Source: ONS (2023e), Regional gross domestic product (GPD) enterprise regions reference tables

Qualifications

~~51.~~52. The distribution of qualifications within an economy is an indicator of the overall human capital of the area. Individuals with higher levels of qualification are more likely to get paid more and find employment quicker if they become unemployed.

~~52.~~53. The level of qualifications in the LTRA was considerably lower than the UK average. Residents of the LTRA were almost twice as likely to have no formal qualifications (13.1%) than the UK average (6.8%). Similarly, the proportion of residents who had qualifications of NVQ4 or above, equivalent to a higher education qualification, was almost half in the LTRA (22.8%) compared to the UK as a whole.

~~53.~~54. The level of qualifications in the LEA was also lower than the UK average, but this difference is less stark. The proportion of residents with no qualifications was 9.1% and those with an NVQ4 or above equivalent qualification was 31.7%.

Table 29.10: Qualifications, 2021

	LTRA	LEA	Regional Area	UK
None	13.1%	8.9%	7.7%	6.8%
NVQ1+	77.9%	85.2%	86.5%	87.4%
NVQ2+	66.5%	72.6%	75.6%	78.1%

	LTRA	LEA	Regional Area	UK
NVQ3+	42.1%	52.0%	57.1%	61.4%
NVQ4+	22.8%	31.7%	37.0%	43.5%

Source: ONS (2021f), Annual Population Survey 2021

Housing

~~54.~~55. The affordability and availability of housing in an economy contribute to its sensitivity to change and ability to accommodate new people.

~~55.~~56. Housing in the LEA is more affordable in both absolute and relative terms compared the UK average. The average house price in the LEA in March 2023 was £202,000, which is 29% lower than the average across the UK. The average house price was 7.9 times the average annual gross income in the LEA compared to 10.3 times greater across the UK.

~~56.~~57. House prices have increased across all study areas between 2018 and 2023. The rate of change in the LEA (27%) is greater than the UK as a whole (24%) and in line with the wider region, which also experienced a 27% increase in house prices in that time.

~~57.~~58. There were 805 million homes within the LEA and 4.6 million across the Regional Area.

Table 29.11 House Price Values and Changes, March 2018 - March 2023

	March 2018	March 2023	Change	Number of Units*
LTRA	£164,000	£219,667	34%	142,000
LEA	£159,223	£202,000	27%	805,000
Regional Area	£169,000	£215,250	27%	4,621,000
UK	£230,000	£285,000	24%	28,872,000

*Source: ONS (2023g), House Price Statistics for Small Areas in England and Wales, *ONS (2021h) Subnational estimates of dwellings by Tenure*

Table 29.12: Housing affordability, 2022

	LTRA	LEA	Regional Area	UK
Average House Price/Average Annual Gross Income	9.0	7.9	8.2	10.3

*Source: ONS (2023g), House Price Statistics for Small Areas. *ONS (2022d), Annual Survey of Hours and Earnings – resident analysis 2022.*

Pupil Teacher Ratios

~~58.~~59. As a measure of class size and existing provision, the pupil per teacher ratio has been considered. In the Regional Area, there were 18 pupils for every teacher, slightly more than across the UK where there were approximately 17 pupils per teacher.

~~59.~~60. There were 21 pupils per teacher in primary education in the Regional Area, similar to the UK (20 pupils per teacher). There were 17 pupils per teacher in secondary education in the Regional Area, compared to 15 pupils per teacher across the UK.

~~60.~~61. Within nursery education, the pupil per teacher ratio was 22, slightly larger than the average across the UK of 20 pupils per nursery teacher.

~~61.~~62. Alternative educational institutions, such as pupil referral units, had a ratio of 7 pupils per teacher in the Regional Area, lower than across the UK where similar institutions had a ratio of 8 pupils per teacher.

Table 29.13: Pupil Teacher Ratios, 2022

	Regional Area	UK
Nursery	22	20
Primary	21	20
Secondary	17	15
Other	7	8
Total	18	17

Source: UK Government (2022), Education and Training Statistics for the UK.

~~62.~~63. The LEA forms part of the area that is covered by the NHS Lincolnshire Integrated Care Board (ICB)1 and the NHS Humber and North Yorkshire ICB2, which was formed in July 2022. These ICBs are responsible for the provision of health and social care services across these regions.

~~63.~~64. As of September 2022, there were 451 FTE GPs across the NHS Lincolnshire ICB, with 816,200 patients registered at these GP practices. The number of patients per GP was 1,810. In the same time period there were 1,087 FTE GPs within the NHS Humber and 1.8 million patients registered with these GP practices. The number of patients per GP was 1,699. Across both ICBs the average number of patients per GP was 1,722.

~~64.~~65. Across the NHS boards of England, the average number of patients per GP was 1,724 for the same time period.

Table 29.14: Patients per GP, June 2023

	LEA (Combined ICBs)	Regional Area	England
Patients per GP	1,810	1,650	1,697

Source: NHS Digital (2023), Primary Care Workforce June-23; and Patient registered at a GP Practice June-23

Summary of Socio-economic Baseline

~~65.~~66. The economy of the LEA is well balanced but has not performed as well as the wider UK economy recently. The level of employment growth has been lower in the LEA and it is projected that the number of working age people in the area will decrease in coming decades. The levels of qualification and pay are both lower in the LEA, however it does have economic assets which are relevant to the development of the Project. The manufacturing sector is

[1] The NHS Lincolnshire ICB covers the Borough of Boston, District of East Lindsey, City of Lincoln, District of North Kesteven, District of South Holland, District of South Kesteven, District of West Lindsey

[2] The NHS Humber and North Yorkshire ICB covers the District of East Riding of Yorkshire, District of Hambleton, Borough of Harrogate, City of Kingston-upon-Hull, Borough of North East Lincolnshire, Borough of North Lincolnshire, District of Richmondshire, District of Ryedale, Borough of Scarborough, District of Selby, City of York

particularly strong in the LEA and there is a concerted effort to ensure that the benefits of the offshore wind sector are realised in the area.

~~66.~~67. The social and community assets within the LEA, specifically housing, education and healthcare facilities, experience similar demands to those across the wider UK. Housing is more affordable and prices have broadly moved in line with recent trends in the UK market. The number of patients per GP is slightly higher than the UK average; and pupils per teacher in the LEA is in line with the UK average.

Agriculture and Food Security

~~67.~~68. The onshore ECC crosses agricultural land. The land is, in part, of high agricultural quality and 56% has been classified as Grade 1. In total it is expected that the onshore ECC will incorporate approximately 843~~857~~ hectares of agricultural land. Across the UK in 2020, 4.5 million hectares of land was used for agricultural crop production (source – United Kingdom Food Security Report 2021).

Table 29.15 Overview of Potential Agricultural Land Use in ECC by Grade

Land Grade	Area (ha)	Share of Total
Grade 1	477.29~~478~~	56%
Grade 2	184.10~~184~~	~~21~~22%
Grade 3	181.23~~181~~	21%
Non-Graded	12.79~~14~~	~~2~~1%
Total	855.41~~857~~	100%

~~68.~~69. As shown in Table 29.16 below, across the UK 84,825 hectares of farmland was used to grown vegetables in 2022. The agricultural land crossed by the ECC is predominately used in the production of vegetables and the ~~857~~ 843 hectares covered by the ECC is equivalent to 1% of the total agricultural land in the UK that is used to produce vegetables. The amount of land used to grow vegetables in the UK decreased by 20% between 2012 and 2022, equivalent to a reduction of 2,150 hectares per year.

Table 29.16 Overview of UK Arable Agricultural Land Use by Product Type (2022)

Crop Type	Area (ha)
Cereals	2,648,540
Oilseeds	356,721
Potatoes	93,422
Other Arable Crops	641,462
Horticultural Crops	124,372
…of which are vegetables	84,825
Total	3,846,517

~~69.~~70. The market for vegetables in the UK is split between those which are grown in the UK and those which are imported. The UK imports the equivalent of 46% of the vegetables that it consumes. As a result, the reduction in the land used to grow vegetables in the UK has not had a notable impact on the price that UK consumers pay for vegetables.

~~70.~~71. The relationship between the price for vegetables in the UK and the area of land used in their domestic production is shown in Table 29.17. This shows that, for example, between 2015 and 2021, the area of land used in domestic vegetable production decreased by 15.2% and the price of vegetables increased by 0.9%. Therefore, the reduction in land use for domestic vegetable production does not ~~led~~lead to an equivalent rise in the price of vegetables.

Table 29.17 Relationship between Domestic Vegetable Production and CPI for Fresh Vegetables

Year	CPI of Fresh Vegetables – not potatoes (2015 = 100)	Land Used for Vegetable Production (ha, 2015 = 111)
2015	100.0	100.0
2016	95.5	88.8
2017	99.5	91.8
2018	101.1	91.4
2019	104.9	90.4
2020	101.9	91.6
2021	100.9	84.8
2022	108.2	81.2

Onshore Tourism and Recreation Baseline

~~71.~~72. The Onshore Tourism and Recreation baseline in this section identifies the scale and key attractions of the tourism economy within the Local Tourism and Recreation Area (LTRA) defined above.

Visits and Spend of Tourists

~~72.~~73. A range of statistics are available on visitor numbers and visitor spend for the study areas, including from the Great Britain Day Visitor Survey, the Great Britain Tourism Survey and the International Passenger Survey, which produce tourist visit and spending numbers averaged over a 3-year period (2017 – 2019).

~~73.~~74. Figure estimates show that in 2019 there were a total of 16 million visits to the LTRA, with visitors spending a total of £674 million in the local economy. This represented approximately 6% of all visitors and 5% of total tourist spending in the Regional Area that year. The LTRA accounts for 3% of the population of the Regional Area and therefore this would suggest that there were twice as many visits per resident in the LTRA than in the wider regional area.

~~74.~~75. Day visitors accounted for 90% of all visitors to the LTRA, followed by domestic overnight visitors (9%), with international overnight visitors accounting for less than 1% of all visits to the area. While day visitors spend the most in the LTRA (£416 million), the largest spend per trip came from international overnight visitors (£379 per trip), followed by domestic overnight visitors (£160 per trip) and domestic day visitors (£29 per trip).

~~75.~~76. In 2019, there were 269 million visitors to the Regional Area, accounting for approximately 14% of the total 2 billion visits to the UK. The total tourist spending in the Regional Area was £14 billion, equivalent to 13% of the £111 billion spent by tourists across the UK in 2019. As with the local areas, domestic visitors accounted for the highest shares of both visits (93%) and

spending (72%) in the Regional Area. Similarly, the spend per trip of tourists to the Regional Area was highest amongst international visitors (£367 per trip), compared to day visitors (£40 per trip) and domestic overnight visitors (£167 per trip).

~~76.~~77. Trends across the UK were similar, with domestic day visitors accounting for 91% of visits and 53% of spending. Spend per trip was also highest amongst international overnight visitors (£644 per trip), followed by domestic overnight visitors (£197 per trip) and domestic day visitors (£33 per trip).

~~77.~~78. In total, as shown in Table 29.18, there were approximately 16 million tourism trips within the LTRA, with a total associated spend of £674 million.

Table 29.18 Visits and Spending, 2019

	LTRA	Regional Area	UK
Visits (million)			
Day Visitors	14	249	1,795
Domestic Overnight	1	17	124
International Overnight	0	3	43
Total Visits	16	269	1,962
Spend (£ million)			
Day Visitors	416	9,988	58,623
Domestic Overnight	237	2,843	24,368
International Overnight	22	1,101	27,920
Total Spend	674	13,932	110,911

Source: Kantar TNS (2021) Great British Day Visitor Survey; Kantar TNS (2021) Great British Tourism Survey; NISRA (2020), Northern Ireland Annual Tourism Statistics 2019. Note: Totals may not sum due to rounding and the values for all study areas are inclusive.

Geographic Distribution of Tourism Activity within the LTRA

~~78.~~79. The tourism economy within the LTRA was more highly concentrated in some areas, in particular around Skegness. The cluster of tourism assets to the north of Skegness, such as Butlins and Fantasy Island Theme Park, drove significant tourism activity in the area. In particular, this supported 2,500 jobs in bars, restaurants, hotels and other accommodation providers. This was equivalent to 25% of all of the employment in these sectors across the LTRA.

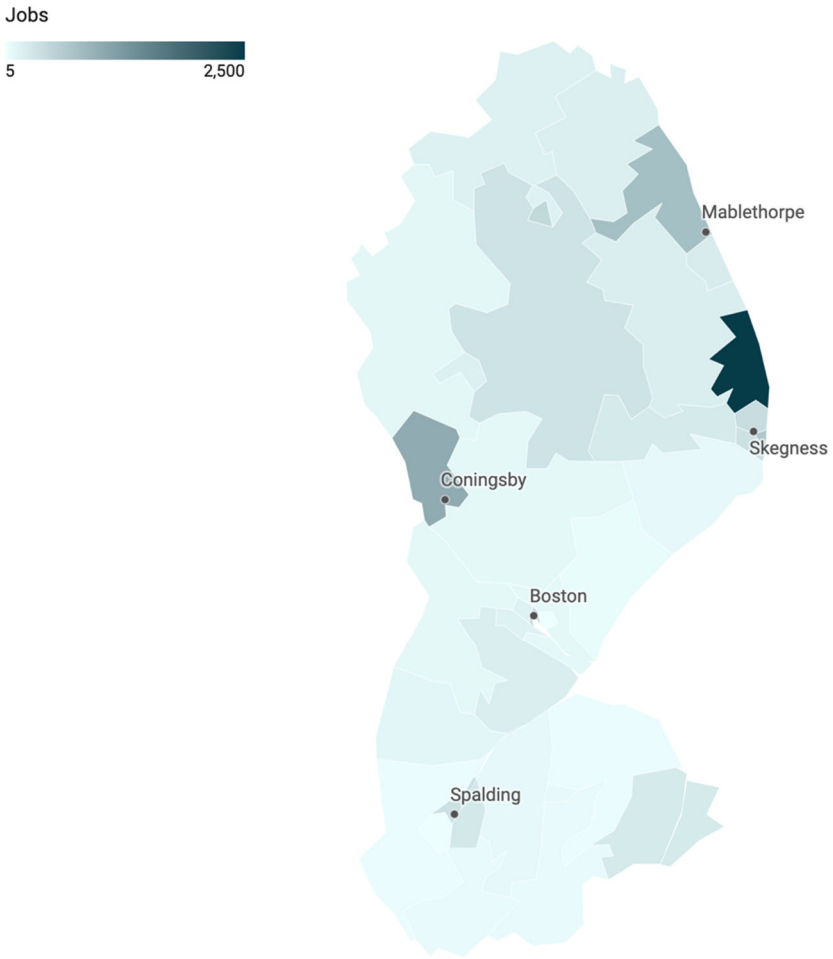

Plate 29-1: Distribution of accommodation, food and drink service employment within the LTRA, split by Middle Layer Super Output Areas

Source: ONS (2021e), Business Register and Employment Survey 2020

~~79.~~80. The sector has grown faster within the LTRA than across the wider UK economy. Between 2015 and 2021, the level of employment in the accommodation, food and drink service employment sector in the LTRA grew by 21%. Across the UK during the same time period, employment grew by 9%.

Regional Attractions

~~80.~~81. Data on visits to regional attractions, both paid and free, are published each year by Visit England through the Annual Survey of Visits to Visitor Attractions. This identified the top 20 paid and free attractions in both Yorkshire and the Humber and the East Midlands. In addition, using a web search, additional attractions in the LTRA were identified.

~~81.~~82. The top paid and free attractions in both the three local authorities of South Holland, East Lindsey and Boston are provided in Table 29.19 below.

Table 29.19: Greater Lincolnshire and the Humber Tourist Attractions Key Attractions in Tourism Study Area

Attraction	Description
Gunby Hall	Listed historical house and clocktower

Attraction	Description
Skegness	Seaside town in the East Lindsey District of Lincolnshire which includes a wider variety of tourism attractions and assets, including the Fantasy Island Theme Park and Butlins
Skegness Natureland Seal Sanctuary	Centre which rescues and rehabilitates orphaned and injured seal pups
The Lincolnshire Wolds	Area of countryside designated as an Area of Outstanding Natural Beauty in 1973, with woodland, grassland and abandoned chalk pit
The Parrot Sanctuary	Animal park which is home to 1800 rescued parrots across 20 acres of gardens. The sanctuary also has a collection of big cats including Bengal tigers.
Lincolnshire Wolds Railway	A railway attraction, which received an average of 14,000 visitors annual between 2017 and 2019.
Louth Museum	A local museum in the town of Louth, which received an average of 2,000 visitors annual between 2017 and 2019.
Tattershall Castle	A moated 15th Century castle run by the National Trust, which received an average of 39,000 visitors annually between 2017 and 2019.
Macmillan Way	A long-distance walking route that overs 290 miles and uses existing footpaths bridleways and byways. It is used for sponsored walks, with funds raised donated to Macmillan Cancer Support
Local Caravan Accommodation	Cluster of caravan accommodation, including static units and facilities for mobile caravans and camping

Sources: Visit Lincoln (2021), Visit Lincoln Expands into Greater Lincolnshire, Planetware (2021), 12 Top-Rate Tourist Attractions in Hull, TripAdvisor (2021), Things to Do in East Riding of Yorkshire. Visit England (2021) Annual Survey of Visits to Visitor Attractions Full Listing

Marine Recreational Baseline

Marine Recreational Activities: Boating

~~82.~~83. The marine recreational baseline is outlined for the Marine Recreation Study Area, which is shown in Figure 29.1. As for most of the northeast coast, there is relatively little recreational boating within the Marine Recreation Study Area.

~~83.~~84. The main marinas are located in the Humber estuary, at Grimsby and Hull. In addition, there are Royal Yachting Association (RYA) training centres and clubs around the Humber and along the North Norfolk coast. These locations also relate broadly to the vessel usage heatmap, which represents Automatic Identifier System (AIS) recreational vessel data and is provided by the RYA Coastal Atlas (2021). The highest usage in the Humber estuary with activity extending south to the mouth of the Wash and the North Norfolk coast. These focus points lead to bands of routes concentrated on Scarborough to the Humber and the Humber to north Norfolk. There was also a light usage route Scarborough to Northeast Norfolk. Vessel usage was reported to be generally low in this region due to the lack of suitable weather and therefore vessel safety (Sea Search Northeast Coast Coordinator, pers. comms).

~~84.~~85. Recreational vessel activity has been captured through consultation with recreational stakeholders, including the RYA, as per guidance in the MCA's Marine Guidance Note (MGN) 654 to identify any recreational vessels not required to (or choosing to) broadcast via AIS.

~~85.~~86. The long-term analysis of vessel movements within the array area, presented in PEIR Volume 5, Appendix 9.1: Navigational Risk Assessment, identified that there was an average of one unique recreational vessel movement per day within the relevant study area. The summer period is the busiest time in the year for recreational sailing and accounted for 79% of all recreational vessel records across the year. The majority of the recreational vessels were on transit through the study area to the west and these routes are shown in Figure 29.2.

~~86.~~87. Similarly, recreational vessels also transit across the offshore export cable corridor. Analysis of AIS data found that in a 14-day period in August 2022 there was an average of 55 vessels per day which cross the offshore export cable corridor. Less than 10% of these vessels were recreational. The majority of the recreational vessel movements were recorded in the west of the offshore export cable corridor, closer to shore. The routes of the recreational vehicles are shown in pink in Figure 29.3.

Marine Recreational Activities: Angling

~~87.~~88. Across England, the Centre for Environment, Fisheries & Aquaculture Science (Cefas) estimated that there were 375,000 sea anglers in 2019 and in 2017 this activity supported 16,300 jobs across the UK (Cefas, 2021). Recreational fishing, in terms of both shore and sea angling, has recently been characterised throughout English waters (MMO, 2020), as shown in Figure 29.4. Whilst these data are proxy and indicative, informed by selective surveys, data collection, online searches and other sources, they provide the first complete coverage to date and are the best source to inform the baseline of angling activities. The majority of UK recreational fishing was angling and so was the predominant data source for this section.

~~88.~~89. Sea angling operates out of Bridlington (north), Grimsby (Humber Estuary) and the North Norfolk Coast, where boats are moored, as well as a number of slipways throughout the area (mostly south of the Humber). Whilst there were a number of fishing grounds delineated in the study areas, these were of low to medium intensity use, and located to the north and south of the array, and were not directly within the export cable route corridor. The chartered fishing boat data aggregated for Bridlington shows that trips were mainly targeting wrecks, ground and rough areas, with species caught mainly cod, bass and flatfish. Similarly, for Grimsby, chartered fishing boat data aggregated were mainly targeting ground, rough and estuary areas, with species caught being mainly skate / ray and bream. Whilst most of the chartered boats out of Grimsby carried out trips up to 60 days a year, in Bridlington this was more variable, from 20 to 60 days.

~~89.~~90. Shore based angling was also shown to take place along much of the study area's shoreline. Activity was mostly of medium intensity to the north of the Humber, with more stretches of high intensity to the south.

~~90.~~91. Lastly, there were pockets of shoreline where bait collection takes place, although information was only available within Marine Protected Areas, (MPAs) as this has been produced separately in a survey and data collection-based project on non-licensable activities (MMO, 2021). Bait collections took place predominantly along the Humber estuary shoreline and a short distance to the south, as well as the western shoreline of the Wash.

Marine Recreational Activities: Scuba Diving

~~91.~~92. Unlike many parts of England's coast, relatively little scuba diving takes place in the study area (Seasearch Northeast Coast Coordinator, pers. comms). This is reflected by nature conservation diving reports at specific locations over multiple years (Seasearch, 2021: full coverage data); these surveys are carried out by volunteers in their personal leisure time and may provide an initial proxy for general diving areas. Within the last year, there are only 11 areas where Seasearch diving is shown to take place in the Marine Recreation Study Area.

~~92.~~93. Additional data on scuba diving, recently mapped in Marine Protected Areas (MPAs) only and informed by stakeholder engagement (MMO 2021), do show some additional diving locations in the southern part of the study area. These are located within the Inner Dowsing, Race Bank and North Ridge Special Area of Conservation (SAC) (~20 dive sites) and the Wash and North Norfolk Coast SAC (~3).

~~93.~~94. Diving activity from vessels is reported to be relatively low in this region due to the lack of suitable weather and therefore reduced vessel safety (Seasearch Northeast Coast Coordinator, pers. comms).

Marine Recreational Activities: Other General Activities

~~94.~~95. Other marine recreation activities that take place across the study area, but with data restricted to within MPAs, are shown in Table 29.20 (MMO 2021; MMO 2019); the data provided have been informed primarily by stakeholder consultation.

Table 29.20 Summary of general marine recreation activities within MPAs

MPA	General Recreational Activity*
Humber Estuary EMS coastline (north and south nearshore coastline)	Swimming / snorkelling
Humber Estuary EMS coastline (south nearshore coastline out to <1.5km offshore)	Gliding (unpowered)
Humber Estuary EMS coastline (south coastline)	Motorsports
Humber Estuary European Marine Site (EMS), Gibraltar Point SPA, North Norfolk Coast SAC, Wash SAC (nearshore coastal)	Access, bait collection, beach recreation, board sports, drone use, land boarding, paddle sports, watersports (towed and untowed), wildlife watching from land.

MPA	General Recreational Activity*
Humber Estuary European Marine Site (EMS), Gibraltar Point SPA, North Norfolk Coast SAC, Wash SAC (coastline out to <5km offshore)	Aircraft (powered), jet skis

Tourism and recreation summary

~~95.~~96. The tourism economy is important to the LTRA. It attracts twice as many visitors per person than the UK average and the tourism sector employs a greater share of the workforce. The Butlins and Fantasy Island Theme Park at Skegness are the primary attractions that bring people to the area and account for the largest concentrations of tourism employment in the area. Marine recreation is not considered to be a key driver of the tourism economy in the LTRA.

~~96.~~97. Marine recreation in the area is less developed and concentrated than other parts of the UK, primarily as a result of the availability of marinas and suitable harbours and prevailing sea conditions.

29.4.4 Future Baseline

~~97.~~98. In the event that the Project is not developed, an assessment of future conditions for socio-economics has been carried out and is described within this section.

~~98.~~99. In the context of the Project not being constructed, the future socio-economic conditions would likely continue on current trajectories. This will include a decline in the working age population over the coming decades.

~~99.~~100. Within the Regional Area, the relevant economic strategies consider the development of the offshore wind sector to be a core opportunity for growth as it will enable the area to maximise on its comparative advantages of port infrastructure, manufacturing skillsets and proximity to the proposed development sites. If not developed, the Project would reduce the ability of the regional area to realise the economic potential of the offshore wind sector and its supply chain, as described in the local economic strategies.

29.5 Basis of Assessment

29.5.1 Scope of the Assessment

Impacts Scoped In for Assessment

~~100.~~101. The following impacts have been scoped into this assessment:

- Construction:
  - Impact 1: Economic Activity in the LEA (GVA);
  - Impact 2: Economic Activity in the LEA (Employment);
  - Impact 3: Economic Activity in the Regional Area (GVA);
  - Impact 4: Economic Activity in the Regional Area (Employment);
  - Impact 5: Economic Activity in the UK (GVA);

- Impact 6: Economic Activity in the UK (Employment);
- Impact 7: UK Vegetable Market;
- Impact 8: Social and Community Asset Impacts;
- Impact 9: Tourism Economy Impact in the LTRA;
- Impact 10: Tourism Assets in Skegness; and
- Impact 11: Recreational Use of the Macmillan Way.

- Operation and maintenance:
  - Impact 1: Economic Activity in the LEA (GVA);
  - Impact 2: Economic Activity in the LEA (Employment);
  - Impact 3: Economic Activity in the Regional Area (GVA);
  - Impact 4: Economic Activity in the Regional Area (Employment);
  - Impact 5: Economic Activity in the UK (GVA);
  - Impact 6: Economic Activity in the UK (Employment);
  - Impact 7: Tourism Economy Impact in the LTRA;
  - Impact 8: Tourism Assets in Skegness; and
  - Impact 9: Recreational Use of the Macmillan Way.
- Decommissioning:
  - Impact 1: Economic Activity in the LEA (GVA);
  - Impact 2: Economic Activity in the LEA (Employment);
  - Impact 3: Economic Activity in the Regional Area (GVA);
  - Impact 4: Economic Activity in the Regional Area (Employment);
  - Impact 5: Economic Activity in the UK (GVA);
  - Impact 6: Economic Activity in the UK (Employment); and
  - Impact 7: Social and Community Asset Impact; and
  - Impact 8: Tourism and Recreation Assets in the LTRA.

Impacts Scoped Out of the Assessment

~~101.~~102. Based on the baseline environment information currently available, the project description (outlined in document reference 6.1.3) and the advice within the Scoping Opinion (the Inspectorate, 2022) a number of impacts have been scoped out of the assessment for Socio-economics, tourism and recreation and as such are not considered further in the EIA process. These impacts are outlined below:

- Transboundary impacts;

- Social and Community Asset Impacts, including housing and accommodation, for the Operations and Maintenance phase; and
- Impacts on Tourism and Recreation receptors that do not experience significant environmental effects.

29.5.2 Realistic Worst-Case Scenario

~~102.~~103. At this stage of the Project the exact parameters for the design and approach have not been concluded. In line with the Rochdale Envelope approach, it is therefore necessary to consider a Maximum Design Scenario (MDS) that presents the maximum design parameters of the combined project assets that result in the greatest potential for change in relation to each impact assessed.

~~103.~~104. The MDS for the socio-economics, tourism and recreation assessment is summarised in

~~104.~~105. Table 29.21 and is based on information and the parameters outlined in Volume 1, Chapter 3: Project Description. This MDS is used as a basis for the 'realistic worst-case' assessment.

Table 29.21: Parameters of Maximum Design Scenario for Socio-economics, tourism and recreation

Potential Effect	Maximum adverse scenario assessed	Justification
Construction		
Impacts 1 – 6: Economic impacts	Conservative assumptions are made with regards to the ability of businesses in each study area to deliver the contracts for the Project across all contract tiers. Specifically, it is assumed that the UK content will be 45%, rather than the target of 60% in UK Offshore Wind Sector Deal . The Project will include up to 100 WTGs, each with a capacity of 15 MW.	An economic impact model is used to estimate the GVA generated during the development and construction phase. The extent of benefits secured in each study area will depend on port choice and on the ability of local businesses to secure contracts.
Impact 9: Tourism sector impacts	Tourism sector impacts are determined by potentially significant effects on the key drivers of the tourism economy in the LTRA. These drivers will be either tourism or recreation assets. Tourism and recreation impacts are determined by significant environmental effects identified in other chapters, therefore the design parameters that determine these impacts will vary depending on which environmental effect, such as visual impact, is driving the impacts on tourism and recreation assets.	Impacts are dependent on significant impacts identified in these chapters.

Potential Effect	Maximum adverse scenario assessed	Justification
Impact 10 – 11: Tourism and recreational assets impacts	Tourism and recreation impacts are determined by significant environmental effects identified in other chapters, therefore the design parameters that determine these impacts will vary depending on which environmental effect, such as visual impact, is driving the impacts on tourism and recreation assets.	Impacts are dependent on significant impacts identified in these chapters.
Impact 8: Social and community asset impacts	Conservative assumptions are made with regards to the ability of businesses in each study area to deliver the contracts for the Project. The construction period is assumed to be between 2027 and 2031.	An economic impact model is used to estimate the worst case GVA generated during the development and construction phase. The extent of benefits secured in each study area will depend on port choice and on the ability of local businesses to secure contracts. A shortened construction timetable will increase the peak workforce required. This will increase the magnitude of any short-term requirements on social and community assets.
Impact 7: UK Vegetable Market	Maximum disruption of agricultural land use along the ECC. All land within the ECC is not able to produce crops for at least 1 year, this increases to 3 years at landfall and around the OnSS, and all land is currently used to produce vegetables.	The magnitude of impact on the UK vegetable market will be directly proportional to the reduction in domestic output, which is assumed to be directly linked to the area of land used for vegetable production.
Operation and Maintenance		
Impacts 1 – 6: Economic impacts	Conservative assumptions are made with regards to the ability of businesses in each study area to deliver the contracts for the Project across all contract tiers. Specifically, it is assumed that the UK content will be 45%, rather than the target of 60% in UK Offshore Wind Sector Deal . The Project will include up to 100 WTGs, each with a minimum capacity of 15 MW.	An economic impact model is used to estimate the GVA generated during the development and construction phase. The extent of benefits secured in each study area will depend on port choice and on the ability of local businesses to secure contracts.
Impact 7: Tourism sector impacts	Tourism sector impacts are determined by potentially significant effects on the key drivers of the tourism economy in	Impacts are dependent on significant impacts identified in these chapters.

Potential Effect	Maximum adverse scenario assessed	Justification
	the LTRA. These drivers will be either tourism or recreation assets. Tourism and recreation impacts are determined by significant environmental effects identified in other chapters, therefore the design parameters that determine these impacts will vary de-pending on which environmental effect, such as visual impact, is driving the impacts on tourism and recreation assets.	
Impact 8 – 9: Tourism and recreational assets impacts	Tourism and recreation impacts are determined by significant environmental effects identified in other chapters, therefore the design parameters that determine these impacts will vary depending on which environmental effect, such as visual impact, is driving the impacts on tourism and recreation assets.	Impacts are dependent on significant impacts identified in these chapters.
Decommissioning		
Impacts 1 – 6: Economic impacts	Conservative assumptions are made with regards to the ability of businesses in each study area to deliver the contracts for the Project across all contract tiers. Specifically, it is assumed that there will not be a growth in overall UK content to meet the 60% target for UK content. The Project will include 100 WTGs, each with a capacity of 15 MW.	An economic impact model is used to estimate the GVA generated during the development and construction phase. The extent of benefits secured in each study area will depend on port choice and on the ability of local businesses to secure contracts.
Impact 7: Social and community asset impacts	Conservative assumptions are made with regards to the ability of businesses in each study area to deliver the contracts for the Project.	An economic impact model is used to estimate the GVA generated during the decommissioning phase. The extent of benefits secured in each study area will depend on port choice and on the ability of local businesses to secure contracts.
Impact 8 : Tourism and recreational assets impacts	Tourism and recreation impacts are determined by significant environmental effects identified in other chapters, therefore the design parameters that determine these impacts will vary depending on which environmental effect, such as visual	Impacts are dependent on significant impacts identified in these chapters.

Potential Effect	Maximum adverse scenario assessed	Justification
	impact, is driving the impacts on tourism and recreation assets.	

29.6 Embedded mitigation

~~105.~~106. The Project will take a proactive approach to mitigation and enhancement measures to maximise the positive effects of the Project and minimise any negative effects that are identified. It is expected that the following mitigation and enhancement measures will be embedded by the Project.

Measures to Maximise Local Economic Benefit

107. The draft DCO includes Requirement 30, skills, supply chain and employment, which secures the production of a skills, supply chain and employment plan, which must be submitted to and approved by the relevant planning authority, in consultation with Lincolnshire County Council.

~~106.~~108. The Project will consider:

- Proactively engaging with local economic development stakeholders and industry groups, including Grimsby Renewables Partnership, The Humber Offshore Wind Cluster and Team Humber Marine Alliance, to understand the capacity for local companies to be involved in the supply chain for the Project;
- Proactively supporting Tier 1 contractors to increase their local content, through the hosting of events to provide local businesses with the opportunity to engage with the Tier 1 contractors;
- Working with local economic development stakeholders to identify any potential barriers to entry for this market and actively work towards removing these barriers, for example this could involve managing all contract opportunities generated by the Project through a central repository that reduces the administrative burden on Small and Medium Enterprises (SMEs).;
- Engaging at an early stage with education and training providers to identify potential skills gaps and opportunities for collaboration;
- Engaging with other developers in the area to improve opportunities for the local supply chain; and
- Including reporting requirements on the level of UK content as part of the tendering process for contracts.

Measures to Minimise Negative Impacts During Construction

~~107.~~109. Any negative socio-economic, tourism and recreational impacts associated with the construction of the Project will be a secondary effect of other identified environmental impacts, such as those identified in Volume 1 of the ES:

- Chapter 25: Land Use;

- Chapter 26: Noise and Vibration;
- Chapter 27: Traffic and Transport; and
- Chapter 28: Landscape and Visual Assessment.

~~108.~~110. The Applicant has developed and will adhere to Project specific policies which shall identify potential negative environmental effects and identify specific measure to mitigate against these. The policies are submitted as Part 8 of the application and will include:

- Document 8.1.1 Outline Noise and Vibration Management Plan;
- Document 8.1.3 Outline Soil Management Plan;
- Document 8.1.7 Outline Organic Land Protocol;
- Document 8.15 Outline Construction Traffic Management Plan; and
- Document 8.17 Outline Public Access Management Plan.

29.7 Assessment Methodology

29.7.1 Assumptions and Limitations

~~109.~~111. The primary limitations associated with the socio-economic assessment of the Project are related to the early stage of the development process and the lack of clarity on the location of the port side activity and the level of expenditure.

~~110.~~112. At the time of writing there was no certainty about the overall expenditure associated with the Project. General industry data has been used to estimate expenditure, but as the Project develops the level of expenditure will be refined.

~~111.~~113. Additionally, ongoing disruptions to the energy supply chain were resulting in substantial changes in prices, which is reflected in the baseline. This situation is developing and further changes to the energy supply chain baseline may take place.

~~112.~~114. There is also uncertainty regarding the location of the suppliers that will support the Project. General industry data have been used to estimate the geographic distribution of the supply chain.

29.7.2 Magnitude of impacts

Magnitude of Sector Specific Economic Impacts

~~113.~~115. In addition to the change in the overall impact in the GVA or employment of an area, consideration should also be given to the sectors of the economy which are considered to contribute to the economic sensitivity of the area. For example, if there is a high level of concentration of employment in the tourism trade, particular attention should be given to the magnitude of change within this sector. Similarly, sectors may contribute to the economic sensitivity of an area because of their relationship to the Project that is being developed. For example, if the Project is associated with offshore wind, then the construction, manufacturing and professional services sectors present in an area are likely to contribute towards its sensitivity.

~~114.~~116. The definitions of the magnitude of impacts within sectors are provided in

~~115.~~117. Table 29.22.

Table 29.22: Definitions of magnitude for sector specific economic impacts

Magnitude	Sector Specific (including Tourism)
High	An effect would be considered to have a high magnitude on a sector if the change within that sector was equivalent to all of the sector's share of typical economic growth per capita. Specifically, for each sector in a study area: ▪ peak annual GVA impact within that sector is greater than, or equal to, 1% of the sector; or ▪ peak employment supported by the sector is greater than, or equal to, 1% of the total number of jobs in that sector

Magnitude	Sector Specific (including Tourism)
Medium	An effect would be considered to have a medium magnitude on a sector if the change within that sector was equivalent to half of the sector's share of typical economic growth per capita. Specifically, for each sector in a study area: ▪ peak annual GVA impact within that sector is greater than, or equal to, 0.5% of the sector; or ▪ peak employment supported by the sector is greater than, or equal to, 0.5% of the total number of jobs in that sector
Low	An effect would be considered to have a low magnitude on a sector if the change within that sector was equivalent to a quarter of the sector's share of typical economic growth per capita. Specifically, for each sector in a study area: ▪ peak annual GVA impact within that sector is greater than, or equal to, 0.25% of the sector; or ▪ peak employment supported by the sector is greater than, or equal to, 0.25% of the total number of jobs in that sector
Negligible	An effect would be considered to have a negligible magnitude on a sector if the change within that sector was equivalent to less than a quarter of the sector's share of typical economic growth per capita. Specifically, for each sector in a study area: ▪ peak annual GVA impact within that sector is less than 0.25% of the sector; or ▪ peak employment supported by the sector is less than 0.25% of the total number of jobs in that sector

Magnitude of Tourism and Recreation Impacts

~~116.~~118. Impacts will occur on tourism and recreation receptors if they are sensitive to changes in environmental factors that will occur as a result of the Project and the receptor is considered to experience a significant impact as a result of changes to these environmental factors.

~~117.~~119. The impacts considered on tourism and recreation assets are changes to visitor or user behaviour and outcomes. Any environmental impact on these receptors shall therefore be assessed against how it will change behaviour compared to the current baseline of visitor or user behaviour of the receptor.

~~118.~~120. The definitions of the magnitude of impacts on tourism and recreation assets are provided in Table 29.23.

Table 29.23: Definitions of magnitude of tourism and recreation impacts

Magnitude	Tourism and Recreation Impacts
High	The effect on a tourism and recreation asset would be considered to have a high magnitude if it is predicted to experience a major change of behaviour of visitors or users.

Magnitude	Tourism and Recreation Impacts
Medium	The effect on a tourism and recreation asset would be considered to have a major magnitude if is predicted to experience a moderate change of behaviour of visitors or users.
Low	The effect on a tourism and recreation asset would be considered to have a low magnitude if is predicted to experience a minor change of behaviour of visitors or users.
Negligible	The effect on a tourism and recreation asset would be considered to have a negligible magnitude if is predicted to experience an undetectable change of behaviour of visitors or users.

Magnitude of Demographic and Service Demand Impacts

~~119.~~121. The magnitude of impacts on the social or community assets is dependent on the demographic changes that will occur in each of the study areas as a result of the Project.

~~120.~~122. The severity of any change in demographics is measured against the level of annual change that is typical in the study area that it serves. This will be in line with the change a community or social asset will accommodate in a year.

Table 29.24: Definitions of magnitude of social and community asset impacts

Magnitude	Social and Community Asset Impacts
High	The effect on a social or community asset would be considered to have a major magnitude if the change in residual population was equivalent to 100% or more of the average annual growth rate for the study area.
Medium	The effect on a social or community asset would be considered to have a moderate magnitude if the change in residual population was equivalent to between 50% and 100% of the average annual growth rate for the study area.
Low	The effect on a social or community asset would be considered to have a minor magnitude if the change in residual population was equivalent to between 25% and 50% of the average annual growth rate for the study area.
Negligible	The effect on a social or community asset would be considered to have a negligible magnitude if the change in residual population was equivalent to less than 25% of the average annual growth rate for the study area.

29.7.3 Sensitivity of Receptors

~~121.~~123. The overall approach to determining the sensitivity of a receptor is outlined in Volume 1, Chapter 5. This states that the sensitivity of the receptor is determined by assessing the following sorts of considerations:

- Adaptability - the degree to which a receptor can avoid or adapt to an impact;
- Tolerance - the ability of a receptor to accommodate temporary or permanent change without a significant adverse impact;
- Reversibility and recoverability - the temporal scale over and extent to which a receptor will recover following an impact; and

- Value and importance - a measure of the receptor's importance in terms of its relative ecological, social or economic value or status.

~~122.~~124. This section discusses how this sensitivity has been applied to socio-economic and tourism receptors, including:

- Economies;
- Sectors;
- Tourism and recreation assets; and
- Community and social assets.

Sensitivity of Economies

~~123.~~125. The sensitivity of an economy is linked to how well it is able to absorb change. To consider the sensitivity of an economy, or a sector within that economy, it is necessary to consider both the resilience and agility of the economy. There are a number of factors that contribute to an assessment of resilience and agility, these include:

- The scale of the economy;
- The diversity of sectors in the economy;
- The level of economic activity;
- The level of skills and education; and
- The level of economic potential from utilising capital (natural, human, social, economic).

~~124.~~126. The **scale of an economy** is particularly relevant in rural areas. An economy that is small in absolute terms may have less agility, particularly if the structure is well established. Demographic trends are also likely to be relevant.

~~125.~~127. The **diversity of the economy**, as defined by the spread of sectors, is a good indicator of resilience. If an economy is over reliant on one sector, then a shock that impacts on this sector could have a disproportionate impact on the economy as a whole.

~~126.~~128. The **economic activity** rate in an economy, particularly how this compares to the wider national economy and trends in this rate are an indicator of economic resilience. A declining, either in absolute or relative terms, economically active population could indicate that the economy has been less able to accommodate changes. Conversely, an economically active population that is growing at a faster rate than the national average could indicate a greater level of agility.

~~127.~~129. The **level of skill** in an economy, as described by the level of qualifications and occupation level, indicate the ability of the workforce to react to new employment opportunities or find new work if there is a loss of employment.

~~128.~~130. The **economic potential** of an economy is linked to the natural, human, social and economic capital that is available.

Table 29.25: Definitions of sensitivity for a socio-economics receptor

Sensitivity	Definition
Major	A highly (major) sensitive economy will not be able to absorb changes without fundamentally altering its present character or value. Factors that would contribute to an economy being considered of high sensitivity include: ▪ The economy is particularly reliant on a single sector; ▪ The number of jobs in the economy has been declining over multiple years; and ▪ The share of people with no qualifications is significantly above the average for the wider economy.
Moderate	A moderately sensitive economy has a moderate capacity to absorb changes without fundamentally altering its present character or value, however it would be less resilient than the wider economy. Factors that would contribute to an economy being considered of medium sensitivity include: ▪ The economy is particularly reliant on a small number of sectors; ▪ The number of jobs in the economy has grown less than the wider economy; and ▪ The share of people with no qualifications is above the average for the wider economy.
Minor	A low (minor) sensitive economy is tolerant to changes without fundamentally altering its present character or value. Factors that would contribute to an economy being considered of low sensitivity include: ▪ Most sectors of the economy are well represented; ▪ The number of jobs in the economy has grown in line with the wider economy; and ▪ The level of educational attainment is in line with the wider economy.
Negligible	An economy with negligible sensitivity is very agile and will be able to accommodate changes without affecting its character or overall value. Factors that would contribute to an economy having negligible sensitivity include: ▪ The economy is well balanced between sectors; ▪ The number of jobs in the economy has grown at a quicker rate than the wider UK economy; and ▪ The share of people with no qualifications is below average for the wider economy.

Sensitivity of the Tourism Economy

~~129.~~131. The assessment considers the effect of the Project on the tourism economy. This requires an assessment of the sensitivity of the tourism sector in the study area. A tourism sector will be sensitive if there are only a few drivers of tourism or if there is a particular reliance on a particular type of visitor.

~~130.~~132. The assessment of sensitivity also considers the nature of the effect and the key drivers of the tourism economy in each study area. As discussed in Table 29.26, different tourism and recreation assets will be sensitive to different environmental effects. Therefore, if key assets within the tourism sector are not sensitive to an environmental effect, this will reduce the sensitivity of the tourism economy to that effect. Similarly, if the key markets of the tourism sector in an area are sensitive to a particular environmental effect this will also contribute to the overall sensitivity of the tourism sector. Therefore, the overall sensitivity of the tourism sector is dependent on the sensitivity of the drivers of tourism in the area.

~~131.~~133. To assess the sensitivity of the tourism economy in each of the study areas it is necessary to consider:

- The type and number of drivers of tourism to the area;
- The sensitivity of key drivers of the tourism economy to the nature of the effect; and
- The types of visitors that are attracted to the area.

Table 29.26: Definitions of sensitivity for tourism sector

Sensitivity	Definition
Major	A highly (major) sensitive tourism sector will not be able to absorb changes without fundamentally altering its present character or value. Factors that would contribute to a tourism sector being considered of high sensitivity include: ▪ The tourism sector is particularly reliant on a one single attraction or market that is sensitive to the environmental effect; and ▪ The number of jobs in the tourism sector economy has been declining over multiple years.
Moderate	A moderately sensitive tourism sector has a moderate capacity absorb changes without fundamentally altering its present character or value. Factors that would contribute to a tourism sector being considered of medium sensitivity include: ▪ The tourism sector is particularly reliant on a small number of attractions or markets that are sensitive to the environmental effect; and ▪ The number of jobs in the tourism sector economy has grown at a slower rate than the wider tourism sector.
Minor	A low (minor) sensitive tourism sector will be able to absorb most changes without fundamentally altering its present character or value. Factors that would contribute to a tourism sector being considered of low sensitivity include: ▪ The assets and markets that drive the tourism economy are not sensitive to the environmental effect; and

Sensitivity	Definition
	▪ The number of jobs in the tourism sector economy has grown at a similar rate to wider tourism sector.
Negligible	A tourism sector with negligible sensitivity is very agile and will be able to accommodate changes without affecting its character or overall value. Factors that would contribute to a tourism sector being considered of negligible sensitivity include: ▪ There are a wide range of assets and markets that drive the tourism economy in the area; ▪ The number of jobs in the tourism sector economy has grown at a faster rate than the wider tourism sector.

~~132.~~134. This assessment considers how the tourism sector contributes to wider economy of each study area and if it is a contributing factor to the sensitivity of the economy. This considers factors including:

- The contribution of the tourism sector to the local economy, including;
  - Tourism employment as a proportion of total employment; and
  - The contribution of the tourism sector to the productivity of the wider economy;
- The contribution of the area to the tourism sector in the wider economy, including;
  - The number of visitors to the area relative to the number of visitors to the wider area; and
  - The presence of tourism attractions/receptors that are considered to be of national or regional importance.

~~133.~~135. The effect of the tourism sector on the economy of the study area will be considered as part of the economy impact analysis, if it is determined that the wider economy is sensitive to changes in the tourism sector.

Sensitivity of Tourism and Recreation Assets

~~134.~~136. The effect on the tourism and recreation assets is scoped into this assessment.

~~135.~~137. The sensitivity of a tourism or recreation asset is determined by how reactive visitors, or users, of this asset are to a change in the environment. The sensitivity may change depending on which environmental factor is being considered. For example, an asset may be highly sensitive to changes in traffic and transport activity but have negligible sensitivity to landscape and visual impacts.

~~136.~~138. The sensitivity of these assets will also depend on the ability of the asset to react to any change. Assets that provide a fixed offering, such as a monument or nature-based attraction will be, other things remaining equal, more sensitive to change.

Table 29.27: Definitions of sensitivity for tourism and recreation assets

Sensitivity	Definition
Major	A tourism or recreational asset with a high (major) sensitivity will not be able to tolerate or adapt to effects as these will result in a fundamental change in visitor behaviour. Factors that will contribute to a tourism or recreational asset being considered of high sensitivity include: ▪ Being dependent on a single environmental condition to attract or accommodate visitors and users; and ▪ Being unable to adapt or adjust in response to changes in visitor or user behaviour.
Moderate	A tourism or recreational asset with a moderate sensitivity will have limited capacity to tolerate or adapt to effects as these will result in a moderate change in visitor behaviour. Factors that will contribute to a tourism or recreational asset being considered of moderate sensitivity include: ▪ Being influenced by a single environmental condition to attract or accommodate visitors and users; and ▪ Have a limited ability to adapt or adjust in response to changes in visitor or user behaviour.
Minor	A tourism or recreational asset with a minor sensitivity will have the ability to tolerate or adapt to effects as these will result in an incidental change in visitor behaviour. Factors that will contribute to a tourism or recreational asset being considered of minor sensitivity include; ▪ Environmental conditions have a minor influence on the ability of the asset to attract or accommodate visitors and users; and ▪ Being able to adapt or adjust the assets in response to changes in visitor or user behaviour.
Negligible	A tourism or recreational asset with a negligible sensitivity will be resistant to changes in environmental factors. Factors that will contribute to a tourism or recreational asset being considered of negligible sensitivity include; ▪ Environmental conditions have a negligible influence on the ability of the asset to attract or accommodate visitors and users; and ▪ Having substantial ability to adapt or adjust the assets in response to changes in visitor or user behaviour.

Sensitivity of Community and Social Assets

~~137.~~139. The effect on the community and social assets is scoped into this assessment. This includes the demand for housing, health services and education services.

~~138.~~140. The adaptability and tolerance of the housing market to accommodate change in each study area is implied by the relative change in the price of housing stock compared to the

wider economy. If prices have increased significantly more within a study area, this would suggest that the housing market has not been able to adapt to a change in demand.

~~139.~~141. In the long term, community and social assets will adapt to serve the communities they are in. Hospitals and education facilities are planned based on the demographic demands in a particular area. Therefore, these sensitivities are considered for short term impacts only and the long term sensitivities of these receptors will be negligible. As a result, the impacts on community and social assets are only considered during the development and construction phase.

~~140.~~142. The sensitivity of the public assets such as health services or schools will be dependent on the concentration of resources that are allocated to these assets. It is assumed that the ability of these assets to adapt to change will not vary by geography. Therefore, the key factor of sensitivity is tolerance to change. It is assumed that this is linked to the relative size of the community that is served by these assets. If a teacher or doctor has less students or patients than the national average, they are more likely to be able to tolerate changes, specifically increases, in these numbers. As a result, these assets will be less sensitive to change.

~~141.~~143. A summary of the definitions and contributing factors for the sensitivity of community and social assets are given in Table 29.28.

Table 29.28: Definitions of sensitivity for community and social assets

Sensitivity	Definition
Major	A community or social asset with major sensitivity will not be able to tolerate or adapt to impacts as these will result in a fundamental change in the ability of these assets to meet the needs of the community. Factors that will contribute to a community or social asset being considered of major sensitivity include: ▪ House prices have increased at a notably faster rate than the national average; ▪ The number of GPs per capita is much lower than the national average; and ▪ The number of pupils per teacher is much higher than the national average.
Moderate	A community or social asset with moderate sensitivity will have a limited capacity to tolerate or adapt to impacts as these will result in a moderate change in the ability of these assets to meet the needs of the community. Factors that will contribute to a community or social asset being considered of moderate sensitivity include: ▪ House prices have increased at a faster rate than the national average; ▪ The number of GPs per capita is lower than the national average; and ▪ The number of pupils per teacher is higher than the national average.
Minor	A community or social asset with minor sensitivity will be able to tolerate or adapt to impacts without a change in the ability of these assets to meet the needs of the community. Factors that will contribute to a community or social asset being considered of minor sensitivity include:

Sensitivity	Definition
	▪ House prices have increased at a similar rate than the national average; ▪ The number of GPs per capita is similar to than the national average; and ▪ The number of pupils per teacher is similar to the national average.
Negligible	A community or social asset with a negligible sensitivity will be resistant to change as they will have a greater capacity to tolerate changes than the wider country. Factors that will contribute to a community or social asset being considered of negligible sensitivity include: ▪ House prices have increased at a slower rate than the national average; ▪ The number of GPs per capita is higher than the national average; and ▪ The number of pupils per teacher is lower than the national average.

Impact Significance

~~142.~~144. The interaction between a receptors sensitivity and its magnitude is considered in determining the significance of the effect, as indicated in Plate 29-2. As discussed in Volume 1, Chapter 5, "Major" and "Moderate" impacts are considered to be significant in EIA terms.

~~143.~~145. For example, if the magnitude of the impact is assessed as Major (negative/adverse) and the sensitivity of the receptor is assessed as Negligible, then the significance will be Minor - Not Significant (see Plate 29-2: Matrix of Significance) and therefore will not be considered significant in EIA terms.

		Magnitude of impact			
		Negligible	Minor	Moderate	Major
Sensitivity of receptor	Negligible	Negligible (Not significant)	Negligible (Not significant)	Minor (Not significant)	Minor (Not significant)
	Minor	Negligible (Not significant)	Minor (Not significant)	Minor (Not significant)	Moderate (Significant)
	Moderate	Minor (Not significant)	Minor (Not significant)	Moderate (Significant)	Major (Significant)
	Major	Minor (Not significant)	Moderate (Significant)	Major (Significant)	Major (Significant)

Plate 29-2: Matrix of Significance

29.7.4 Assessment Methodology

Economic Assessment Methodology

~~144.~~146. The economic impacts considered are reported in terms of:

- GVA - this is a measure of economic value added by an organisation or industry and is typically estimated by subtracting the non-staff operational costs from the revenues of an organisation;
- Years of Employment - this is a measure of employment which is equivalent to one person being employed for an entire year and is typically used when considering short term employment impacts, such as those associated with the development and construction phase of the Project; and
- Jobs - this is a measure of employment which considers the headcount employment in an organisation or industry. This measure is used when considering long term impacts such as the jobs supported during the operational phase of the Project.

~~145.~~147. The economic impacts associated with the supply chain have been assessed in line with the approach considered in the UK Offshore Wind Sector Deal (UK Government, 2020b), the focus of the assessments is the direct and indirect (supply chain) effects. In addition to this, the assessment has also considered the effects of staff spending and the economic impact that this subsequent increase in demand stimulates (the induced effect). The assessment considers the direct, indirect and induced GVA and employment that are supported by the contract values awarded to different sectors of the economy.

~~146.~~148. The offshore elements of the Project will include the construction and installation of new foundations and turbines, the offshore substation and the construction and installation of new inter-array cables and export cabling. The onshore elements considered include all of the onshore cable infrastructure, up to and including the onshore substation.

~~147.~~149. It is acknowledged that at the time of writing, the exact levels of expenditure are unknown by the Applicant. This expenditure is what shall drive the positive economic impacts. The socio-economic assessment therefore considers the Maximum Design Scenario of the lowest, realistic levels of expenditure associated with the Project.

~~148.~~150. The analysis for the Project covers the three stages of the Project, namely:

- the development stage;
- the construction stage; and
- the operational and maintenance stage.

~~149.~~151. The impacts during the development and construction phases are based on any expenditure that has occurred to date as well as the planned expenditure associated with these stages. In addition to the total impact over the period, the assessment has considered the timings of impacts during this stage to understand the peaks and troughs of this activity.

~~150.~~152. The impacts during the operational phase for the Project are based on projected operational expenditure.

~~151.~~153. In instances where impacts are expected to occur over a number of years, such as the operational phase, a discount rate has been applied. This allows impacts that occur sooner to be valued more highly than impacts that occur in the future, a concept known as time preference. In this instance a discount rate of 3.5% will be chosen, which is in line with the UK Government's Green Book (UK Government, 2020b).

~~152.~~154. In addition to data provided by the Applicant and BiGGAR Economics own previous experience, the sources used in this assessment include:

- ONS (2021b) Business Register and Employment Survey;
- ONS (2022) Annual Business Survey;
- Offshore Wind Industry Council (2021) People Skills Survey 2021 - 2026;
- Offshore Wind Industry Council (2020) Collaborating for Growth: Strategies for Expanding the UK Offshore Wind Supply Chain;
- Oxford Brookes University (2020) Guidance on assessing the socio-economic impacts of offshore wind farms (OWFs);
- ORE Catapult (2020) Offshore Wind Operations and Maintenance a ¬£9 billion per year opportunity by 2030 for the UK to seize; and
- BVG Associates (2019) Guide to an Offshore Wind Farm.

Relevant standards and guidelines adopted

~~153.~~155. The approach to EIA follows the general approach outlined in Chapter 5 Environmental Impact Assessment Methodology. In addition to the general approach and guidance outlined in Section 5 EIA Methodology, the assessment of socio-economics, tourism and recreation complies with the following guidance and policy documents where they are specific to this topic:

- EN-1 Overarching National Policy Statement for Energy (2023); and
- EN-3 Overarching National Policy Statement for Renewable Energy Infrastructure (2023).

Tourism and Recreation Impact Assessment Methodology

The relationship between offshore windfarms and tourism

~~154.~~156. The relationship between wind developments (both onshore and offshore) and tourism activity has been the subject of several studies.

~~155.~~157. The visibility of wind turbines to onshore tourists and recreational receptors has the potential to affect the amenity of an area. However, tourism perception research in rural Wales (NFO 2003), North Devon (Aitchison 2004), Scotland (Glasgow Caledonian University 2008), and Northumberland (Northumbria University 2014) show that the majority of people do not perceive windfarms negatively. Furthermore, economic studies in Wales (Regeneris and The Tourism Company 2014) and Scotland (Biggar Economics 2021a) demonstrate that windfarms have no measurable effect on the tourism economy.

~~156.~~158. With regards to offshore wind, an assessment was carried out in 2020 (Biggar Economics 2020b) of the impact on tourism and recreation associated with the East Anglia Two Offshore Wind Farm. The analysis considered visitor spending in the Suffolk Coast Area.

~~157.~~159. The analysis considered 16 areas, including two Areas of Outstanding Natural Beauty, to identify any relationship between offshore wind impacts and changes in visitor behaviour or spending during the construction period. The assessment found no notable impacts on tourism activity associated with offshore wind developments.

~~158.~~160. These assessments have found no general relationship between the development of wind energy projects and the performance of the tourism economy. Therefore, the assessment of the impact of the Project on the tourism economy and specific tourism and recreation assets considers the specific environmental impacts that these receptors will experience as a result and how these impacts will result in changes to visitor and user behaviour.

Factors driving tourism activity

~~159.~~161. Based on existing evidence on tourism and the tourism economy, tourism activity is mostly driven by the following factors:

- the ability and willingness of tourists to travel;
- economic performance (and so whether tourists have disposable income available for leisure trips);
- exchange rates;
- the quality of the overall tourism product;
- the effectiveness of destination marketing; and
- the quality and value for money of the services offered by tourism businesses.

~~160.~~162. In addition, the attractiveness of individual tourism and recreation assets will depend on multiple factors, including those which could be impacted by the development, construction, operation and decommissioning of the Project. These impacts have been identified in other chapters of the ES, including;

- Volume 1, Chapter 17: Seascape, Landscape and Visual;
- Volume 1, Chapter 26: Noise and Vibration;
- Volume 1, Chapter 27: Traffic and Transport; and
- Volume 1 Chapter 28: Landscape and Visual Assessment.

29.8 Impact Assessment

29.8.1 Impact Receptors

~~161.~~163. The principal receptors with respect to socio-economics, tourism and recreation are economic activity (GVA and employment), population, accommodation supply, social infrastructure and tourism activity.

~~162.~~164. The specific features defined within these receptors as requiring further assessment are listed in Table 29.29

Table 29.29: Socio-economics, tourism and recreation receptors relevant to the Project

Receptor group	Receptor	Relevant designated features
Economic	Economic Activity in the LEA	Employment, GVA, supply chain activity and development of low-carbon industry.
Economic	Economic Activity in the Regional Area	Employment, GVA, supply chain activity and development of low-carbon industry.
Economic	Economic Activity in the UK	Employment, GVA, supply chain activity and development of low-carbon industry.
Economic	UK Vegetable Market	Domestic Supply Ratios, Price sensitivity of vegetables
Tourism and recreation	Tourism Activity in the LTRA	Employment and GVA in the tourism sector.
Social and Community Assets	Social and Community Assets in the LEA	Housing, education and healthcare assets

Economic Activity in the LEA

~~163.~~165. This receptor captures any changes in the level of employment and GVA within the LEA, including through supply chain activity. It also covers any contribution the Project could make towards the development of low-carbon industries.

~~164.~~166. The socio-economic baseline has identified that in the LEA:

- The role of the manufacturing sector, which is also important to the offshore wind industry, is much greater than in the UK as a whole;
- The level of educational attainment is lower than the wider economy, in particular the share of the population with no qualifications is higher than average; and
- The level of jobs growth in the LEA is lower than that of the UK as a whole.

~~165.~~167. The sensitivity of the economy of the LEA has therefore been assessed as Moderate, in line with the approach outlined in Table 29.25.

Economic Activity in the Regional Area

~~166.~~168. This receptor captures any changes in the level of employment and GVA within the Regional Area, including through supply chain activity. It also covers any contribution the Project could make towards the development of low-carbon industries.

~~167.~~169. The socio-economic baseline has identified that in the Regional Area:

- The distribution of sectors is broadly in line with the UK average;
- The level of educational attainment is marginally lower than the wider economy, in particular the share of the population with no qualifications is marginally higher than average; and
- The level of jobs growth in the Regional Area is lower than that of the UK as a whole.

~~168.~~170. The sensitivity of the economy of the Regional Area has therefore been assessed as Moderate, in line with the approach outlined in Table 29.25.

Economic Activity in the UK

~~169.~~171. This receptor captures any changes in the level of employment and GVA within the UK, including through supply chain activity. It also covers any contribution the Project could make towards the development of low-carbon industries.

~~170.~~172. The socio-economic baseline has identified that in the UK:

- The economy is well balanced between sectors; and
- Educational attainment and jobs growth are, by definition, in line with the UK average.

~~171.~~173. The sensitivity of the economy of the UK has therefore been assessed as Minor, in line with the approach outlined in Table 29.25.

UK Vegetable Market

~~172.~~174. This receptor captures any changes in the level of domestic output of vegetables and the impact of this domestic production on the supply of these vegetables to the UK market.

~~173.~~175. The socio-economic baseline has identified that in the UK:

- Just under half of the vegetables consumed in the UK are imported;
- The price paid by UK consumers is not strongly linked with the level of domestic vegetable production; and
- The UK vegetable market has therefore been able to tolerate change without fundamentally affecting its present character or value.

~~174.~~176. The sensitivity of the UK vegetable market to changes in domestic production has therefore been assessed as Minor, in line with the approach outlined in Table 29.25.

Tourism Activity in the LTRA

~~175.~~177. This receptor captures any change in tourism spending with knock-on implications on the employment and GVA supported by tourism in the Local Tourism and Recreation Area.

~~176.~~178. The socio-economic baseline has identified that in the LTRA the tourism economy:

- is heavily dependent on the cluster of tourism assets around Skegness, specifically Butlins and Fantasy Island Theme Park; and
- employment grew by significantly more than the UK average; and

~~177.~~179. The approach outlined in Table 29.26 would therefore indicate that the tourism economy could have a high sensitivity to change, depending on the environmental effect that is considered. The sensitivity of the tourism economy in the LTRA will be dependent on the

sensitivity of Butlins and Fantasy Island to the environmental effect. This is summarised in Table 29.40.

Social and Community Assets

~~178.~~180. This receptor considers assets such as housing, education and health services within the LEA and how current users of these assets are affected by any new people moving to the LEA as a result of the Project.

~~179.~~181. The socio-economic baseline has identified that within the LEA:

- The value of house prices has increased at a similar rate to the UK as a whole,
- Across nursery, primary and secondary education, the pupil teacher ratio is similar to that of the UK as a whole; and
- The number of patients per GP is similar to that of England as a whole.

~~180.~~182. The approach outlined in Table 29.28 would therefore indicate that the sensitivity of these social and community assets is Minor.

29.8.2 Construction and Development

~~181.~~183. This section presents the assessment of impacts arising from the construction phase of the Project.

Estimating Development and Construction Expenditure

~~182.~~184. The development and construction of the Project will generate economic impacts through the expenditure that will be required during its development and construction.

~~183.~~185. The economic impact assessment is based on a MDS, with a total of up to 100 WTGs each with a minimum capacity of 15MW. This would result in a combined installed capacity of 1.5GW.

~~184.~~186. Over the course of its lifetime, the Project has estimated that it will invest between £5 billion and £7 billion. This will include development, construction and operational expenditure.

~~185.~~187. Due to the potential range of expenditure, the lowest value from this range as the basis for the assessment of socio-economic impacts. The minimum total lifetime expenditure of the Project is therefore estimated to be £5 billion, of which £2.7 billion will be invested during the development and construction phase.

Estimating Distribution of Expenditure

~~186.~~188. The economic impacts from the development and construction of the Project have been estimated for the LEA, the Regional Area and the UK.

~~187.~~189. The Applicant estimates that between 45% and 60% of the lifetime expenditure of the project will be spent within the UK. As discussed in Section 29.4.3 of this chapter, the UK Offshore Wind Sector Deal (UK Government, 2020a) has the target that projects constructed in 2030 will achieve 60% of UK content during their lifetime. This includes the capital investment and the ongoing O&M expenditure. To meet this target, there will need to be significant investment in the manufacturing capabilities of the UK offshore wind supply chain. In line with

the worst-case scenario analysis, it has been assumed that Project will not achieve this target and 45% of the expenditure will occur in the UK during the lifetime of the project. The majority of the UK expenditure is expected to occur during the operations and maintenance phase and for the purposes of the analysis, based on the lowest local content, it is assumed that 18% of capital expenditure (construction and Development) will be secured within the UK.

~~188.~~190. In total, this would be equivalent to spending:

- £220 million in the LEA;
- £230 million in the Regional Area; and
- £490 million in the UK during the development and construction of the Project.

~~189.~~191. This increased turnover in these companies will support employment and generate GVA within these economies.

Increase in GVA

Description of Impact

~~190.~~192. The first round of expenditure and economic impact will occur within the developer organisation and through its directly procured contractors. For the purposes of the assessment both the developer and its directly procured contractors are considered as one group within the direct impact analysis. This expenditure will generate GVA within these companies, which is measured by the sum of the profits and staff costs that will be stimulated by this turnover.

~~191.~~193. The level of GVA that is supported by a given amount of turnover is dependent on the sector that the company is operating in. To estimate the direct GVA from each of the main contract categories, each contract was split into sub-contracts. Using industry-specific data on turnover and GVA from the Annual Business Statistics (ONS, 2021), turnover/GVA ratios were applied to each specific sub-contract in order to estimate GVA.

~~192.~~194. There would also be knock on effects in the supply chain as these directly procured companies purchase goods and services to support their activities. These effects are estimated by applying Type 1 (Indirect) GVA multipliers, which are sourced from the ONS (ONS, 2022), to the direct GVA impacts.

~~193.~~195. Those who are directly employed on the Project, or through the supply chain, will also have an impact on the economy through the spending of their salaries across the economy. This is the induced impact, and it is calculated using the Type 2 multipliers, that are based on the Input – Output Tables produced by the ONS.

~~194.~~196. The ONS provide estimates of both the Type 1 (indirect) and Type 2 (induced) multipliers for the UK economy, and these have been adjusted for the smaller economies where appropriate.

Magnitude

~~195.~~197. The magnitude of the economic impact from the expenditure during the development and construction phase has been estimated in line with the methodology outlined in 29.7 of this chapter. For the purposes of assessment, only the direct and indirect economic impacts are considered when determining the magnitude of the impact. These describe the

economic activity required to realise the Project and are the focus of other economic assessments associated with offshore wind projects.

~~196.~~198. The induced impacts are quantified and presented for completeness but are not used in the assessment of magnitude.

~~197.~~199. As shown in Table 29.30, throughout the supply chain the development and construction of the Project is expected to generate a minimum:

- £129 million GVA in the LEA;
- £153 million GVA in the Regional Area; and
- £357 million GVA across the UK.

Table 29.30: Construction and Development: Total GVA

	LEA	Regional Area	UK
Direct GVA (£m)	86	90	194
Indirect GVA (£m)	43	63	163
Total GVA (£m)	129	153	357
Induced GVA (£m)	33	41	157
Total GVA Including Induced (£m)	162	194	514

Note: Totals may not sum due to rounding and values for each study area are reported inclusively.

~~198.~~200. The majority of this economic activity will occur during the 4-year manufacturing and construction period. This is expected to peak in Q3 of 2029, when the direct and indirect economic impacts of project will support the annual equivalent of:

- £50 million GVA in the LEA;
- £60 million GVA in the Regional Area; and
- £110 million in the UK.

~~199.~~201. This would be equivalent to 0.3% of the current GVA in the LEA and less than 0.1% of the GVA of the UK.

~~200.~~202. In line with the approach described above, the magnitude of the effect on the economy of the LEA is considered to be Minor, because it is equivalent to between 0.25% and 0.5% of the total GVA of the economy. For both the economy of the Regional Area and the UK, the effect is considered to be negligible as it is equivalent to less than 0.25% of the GVA of these economies.

Table 29.31: Construction and Development: Magnitude of GVA Impact

	LEA	Regional Area	UK
Peak GVA (£m)	50	60	110
Current GVA of Study Area (2020, £m)	15,800	238,500	1,949,600
Peak GVA as % Current GVA	0.3%	0.1%	<0.1%
Magnitude of Effect	Minor	Negligible	Negligible

Sensitivity

~~201.~~203. In line with the approach outlined in Table 29.25 and the socio-economic baseline of each study area, the sensitivity of the economic receptors have been assessed as:

- The sensitivity of the economy of the LEA has been assessed as **Moderate**;
- The sensitivity of the economy of the Regional Area has been assessed as **Moderate**; and
- The sensitivity of the UK economy has been assessed as **Minor**.

Significance of Impact

~~202.~~204. Based on the assessments of sensitivity and magnitude, the effect of the construction and development of the Project on the economy of the LEA was assessed as Minor - Not Significant. Its effect on the economy of the Regional Area was assessed as Minor – Not Significant. Its effect on the economy of the UK was assessed as Negligible - Not Significant.

Table 29.32: Construction and Development: Significance of GVA Impact

	LEA	Regional Area	UK
Sensitivity of Receptor	Moderate	Moderate	Minor
Magnitude of Impact	Minor	Negligible	Negligible
Significance	Minor - Not Significant	Minor – Not Significant	Negligible – Not Significant

Increase in Employment

Description of Impact

~~203.~~205. The construction of the Project will also result in the creation of temporary employment. The estimation of employment impacts relied on the same methodology and assumptions adopted to estimate the impact on GVA.

~~204.~~206. As the construction of the Project will generate short term employment, any impacts on employment are estimated in terms of 'years of employment'. This is a measure of temporary employment, whereby a job lasting for 18 months is to be interpreted as 1.5 years of employment.

Magnitude

~~205.~~207. Based on these assumptions and the methodology outlined in Section 29.7, it was estimated that under a worst-case scenario the Project could result in the creation of:

- 1,690 years of employment in the LEA;
- 2,010 years of employment in the Regional Area; and
- 4,030 years of employment across the UK.

Table 29.33: Construction and Development: Total Employment (Years of Employment)

Employment Type	LEA	Regional Area	UK
Direct Employment	1,070	1,110	2,060
Indirect Employment	620	900	1,970

Employment Type	LEA	Regional Area	UK
Total Employment	1,690	2,010	4,030
Induced Employment	430	540	1,680
Total Employment Including Induced	2,120	2,550	5,710

Note: Totals may not sum due to rounding.

~~206.~~208. In addition to the direct and supply chain impacts considered above, the Project will support economic activity through the spending of those employed during its construction (induced impacts). These benefits could amount to an extra 430 years of employment in the LEA, 540 years of employment in the Regional Area and 1,680 years of employment across the UK.

~~207.~~209. The majority of this economic activity will occur during the 3-year manufacturing and construction period. This is expected to peak in Q3 of 2029, when the construction of the Project is expected to support:

- 680 jobs in the LEA;
- 810 jobs in the Regional Area; and
- 1,200 jobs across the UK.

~~208.~~210. In line with the approach described above, the magnitude of the effect on the economy of the LEA is considered to be Negligible, because it is equivalent to less than 0.25% of the total number of jobs in the economy. The magnitude of the impact is considered to be Negligible for both the economy of the Regional Area and the UK, the effect is considered to be Negligible as it is equivalent to less than 0.25% of the GVA of these economies.

Table 29.34: Construction and Development: Magnitude of Employment Impact

Employment Type	LEA	Regional Area	UK
Peak Employment (Jobs)	680	810	1,200
Current Jobs	742,000	4,722,000	32,172,000
Peak Jobs as % Current Jobs	0.1%	<0.1%	<0.1%
Magnitude of Effect	Negligible	Negligible	Negligible

Note: Values are reported inclusively for each study area

Sensitivity

~~209.~~211. The sensitivity of the economic receptors have been assessed as:

- The sensitivity of the economy of the LEA has been assessed as **Moderate**;
- The sensitivity of the economy of the Regional Area has been assessed as **Moderate**; and
- The sensitivity of the UK economy has been assessed as **Minor**.

Significance of Impact

~~210.~~212. Based on the assessments of sensitivity and magnitude, the effect of the construction and development of the Project on the economy of the LEA was assessed as Minor - Not Significant. Its effect on the economy of the Regional Area was assessed as Minor – Not Significant. Its effect on the economy of the UK was assessed as Negligible - Not Significant.

Table 29.35: Construction and Development: Significance of GVA Impact

	LEA	Regional Area	UK
Sensitivity of Receptor	Moderate	Moderate	Minor
Magnitude of Impact	Negligible	Negligible	Negligible
Significance	Minor Beneficial – Not Significant	Minor Beneficial – Not Significant	Negligible Beneficial – Not Significant

Social and Community Asset Impacts

Description of Impact

~~211.~~213. The potential for a significant influx of transient workers having an impact of community and social assets has been scoped into this assessment. This assessment considers the potential impacts associated with a change in demand for housing, educational and healthcare facilities as a result of this workforce.

Magnitude

~~212.~~214. The potential change in demographics as a result of development and construction of the Project is linked to the number of jobs that are supported.

~~213.~~215. The distribution of economic activity during the development and construction of the Project is determined by the location of the directly contracted and supply chain companies. Changes to the use of and demand for social and community assets will be the result of new people moving to the area to work on these projects.

~~214.~~216. As shown in Table 29.6, it is expected that on average the population of the LEA is projected to grow by 4,840 per year between 2018 and 2043. The peak employment that will be supported in the LEA during the development and construction of the Project is estimated to be 850 jobs. This is equivalent to 18% of the projected annual population growth for the LEA.

~~215.~~217. The majority of the economic activity within the LEA will be focused around the activities of the construction port and on the construction of the onshore infrastructure, such as the cable route and substation. As discussed in Section 29.4.3 of this chapter, the Humber Energy Strategy has identified the offshore wind sector as a long-term opportunity for the area. This is based on a pipeline of offshore wind energy projects in the North Sea that will have demand for construction and manufacturing facilities in the Humber area. It would therefore be expected that the majority of the employment supported in the area will use a workforce that is based in the area.

218. If it was assumed that 25% of the workforce that was employed during the peak activity were new to the area, this would equate to a peak population increase of 170 people. This would be equivalent to 4% of the average population growth. It would also be equivalent to 5% of the total reduction in working age people that is projected for the LEA. In line with the approach to determining the magnitude of social and community asset impacts outlined in Table 29.24, the magnitude of this impact has been assessed as **Negligible**.

Table 29.36: Construction and Development: Magnitude of Social and Community Asset Impacts

	LEA
Peak Population Increase	170
Average Population Increase (2018 – 2043)	4,840
Peak Population Increase as % Normal Population growth	4%
Magnitude of Effect	Negligible

Sensitivity

~~216.~~219. The sensitivity of the social and community assets in the LEA has been assessed as Minor.

Significance of Impact

~~217.~~220. Based on the assessments of sensitivity and magnitude, the effect of the construction and development of the Project on the social and community assets of the LEA was assessed as **Negligible - Not Significant**.

Table 29.37: Development and Construction: Significance of Social and Community Asset Impacts

	LEA
Sensitivity of Receptor	Minor
Magnitude of Impact	Negligible
Significance	Negligible – Not Significant

UK Vegetable Market Impact

Description of Impact

~~218.~~221. The reduction in land available to grow vegetables in the UK as a result of the works required to construct the onshore elements of the Project, could reduce the supply to the UK market.

Magnitude

~~219.~~222. The magnitude of the effect on the UK vegetable market assumes that the entire footprint of the onshore ECC is used to grow vegetables and this land is not available to grow vegetables the year in which the onshore cable will be constructed. It is assumed that there will be a three-year construction process for the onshore cable route and most sections of the route will be unable to grow vegetables for one year during this construction period, however some sections of the route will be impacted for the full three year period. It is estimated that the average annual reduction in land available to grow vegetables is therefore equivalent to 460 hectares.

~~220.~~223. To estimate any effect on the UK market for vegetables, the change in agricultural land use as a result of the Project needs to be put in the context of the typical changes in agricultural land use that are experienced across the UK. The reduction in the availability of land would be equivalent to 17% the annual average reduction in land available for vegetable production between 2012 and 2022.

~~221.~~224. The magnitude of effect of any change in the UK vegetable market is considered in relation to the overall value of the sector. Specifically, the change in price that the UK consumer pays for vegetables as a result of change. On average between 2012 and 2022, the price of

vegetables has increased by the equivalent of 1% in the time that 2,400 hectares of land that has been removed from vegetable production. However, the vast majority of the increase in price in this period occurred in 2022 and this increase in price was not considered to be as a result of a reduction in domestic supply. Analysis by the ONS identified that the three drivers of food price inflation in 2022 were:

- The Russian invasion of Ukraine and subsequent increases in price of grains, fertilizers and energy;
- Labour shortages, which left crops unharvested; and
- Droughts and cold snaps in the key import markets of Europe and North Africa.

~~222.~~225. Prior to 2022 and the Russian invasion of Ukraine, the area of agricultural land that was used to grow vegetables had decreased by 15.2%, ~~-~~while the price of vegetables had only increased by 0.9%. This is equivalent to a 1% increase in price for every 17,700 hectares of land that has been removed from vegetable production.

~~223.~~226. The reduction in domestic supply of vegetables was only one factor affecting the price of food between 2012 and 2021. Factors such as wage inflation, price of overheads and weather events in import markets also contributed to price volatility. However, even if it was assumed that all price inflation was a result of changes to domestic supply, the construction of the ECC would result in the equivalent of a 0.03% increase in the price of vegetables during the construction period. Therefore, in line with the definitions for the magnitude of the sector impacts in Table 29.38, the magnitude of the change has been assessed as negligible.

Table 29.38: Construction and Development: Magnitude of UK Vegetable Market Impact

	Value
Reduction in available land (ha)	460
Average decrease in Vegetable Production Land required for 1% increase in price (ha)	17,700
Equivalent change in price	0.02%
Magnitude of Change	Negligible

Sensitivity

~~224.~~227. The sensitivity of the vegetable market in the UK has been assessed as **Minor**.

Significance of Impact

~~225.~~228. Based on the assessments of sensitivity and magnitude, the effect of the construction and development of the Project on the UK vegetable market was assessed as **Negligible - Not Significant**.

Table 29.39: Development and Construction: Significance of UK vegetable Impacts

	LEA
Sensitivity of Receptor	Minor
Magnitude of Impact	Negligible
Significance	Negligible Adverse – Not Significant

Tourism Economy Impact

Description of Impact

~~226.~~229. The changes in the surrounding environment brought about by the construction of the Project could at least in theory have an impact on the tourism economy of the LTRA.

~~227.~~230. The existence of changes in the surrounding environment, however, in and of themselves do not mean that changes to the tourism economy will occur. For there to be an impact on the tourism economy, each of the following conditions should be met:

- the offshore windfarm construction has some impact(s) on the area;
- visitors, or potential visitors are aware of such impact(s);
- visitors, or potential visitors, react by changing their behaviour. For example, by changing the length of stay, where they choose to visit or the activities that they undertake;
- the change in behaviour results in a change in their level of spending; and
- these changes in visitor spending result in a change in performance of the tourism sector, for example, a change in employment.

~~228.~~231. As set out within the baseline, evidence suggests that there is no relationship between offshore wind developments and the tourism economy. Furthermore, offshore windfarms or lack thereof are not considered as a key determinant of the tourism economy (key factors include tourism offer marketing, exchange rates and economic conditions).

~~229.~~232. However, it has been determined that the tourism economy in the LTRA has the potential to have a major sensitivity to environmental effects, if Butlins and the Fantasy Island Theme Park are sensitive to particular environmental effects.

Magnitude

~~230.~~233. The magnitude of the effect on the tourism economy has been assessed after consideration of other environmental factors that will have a significant impact on Butlins and the Fantasy Island Theme Park.

~~231.~~234. The following chapters presented in Volume 1 of the ES have been reviewed and no significant effects have been identified that impact on either Butlins or Fantasy Island Theme Park;

- Chapter 15: Shipping and Navigation;
- Chapter 18: Infrastructure and Other Marine Users;
- Chapter 25: Land Use;
- Chapter 26: Noise and Vibration;
- Chapter 27: Traffic and Transport; and
- Chapter 28: Landscape and Visual Assessment.

~~232.~~235. Potential significant effects have been identified in Volume 1, Chapter 17: Seascape, Landscape and Visual Impact Assessment. These cover the coastline between Donna Nook and

Gibraltar Point. This includes Butlins and Fantasy Island Theme Park. These potential significant effects would be the result of visibility of the offshore reactive compensation platforms (ORCPs), located 7km from the coastline. This effect will occur during the construction, operation and decommissioning phases. Therefore, this assessment applies to each phase of the Project.

~~233.~~236. The visibility of the ORCPs would be in a similar line of sight to other offshore infrastructure, including Lincs Offshore Wind Farm and Race Bank Wind Farm. This visibility has not resulted in a noticeable change in visitor behaviour and 2023 is expected to be the busiest year for Butlins Skegness (Lincolnshire Live, 2023). Therefore, it is not expected that the visibility of the ORCPs would result in any change of visitor behaviour at Butlins or Fantasy Island Theme Park. Therefore, the magnitude of any change on the tourism economy of the LTRA has been assessed as **Negligible**.

Sensitivity

~~234.~~237. The only environmental factor that has a significant effect on Butlins or Fantasy Island Theme Park is Seascape, Landscape and Visual Impact. This effect is associated with the Offshore Reactive Compensation Platform, rather than the turbines which will be at least 54 km offshore. The focus of the attractions at these locations are the activities on offer and the beach side location. The seascape is one of the reasons for visiting these attractions, but it is not the primary reason. Experience of the performance of these attractions during the construction of other energy projects suggests that visitors are not highly sensitive to these impacts. The sensitivity of the tourism economy of the LTRA to environmental effects of the Project has therefore been assessed as **Minor**.

Significance of Impact

~~235.~~**238.** Based on the assessments of sensitivity and magnitude, the effect of the construction and development of the Project on the tourism economy of the LTRA was assessed as **Negligible (Not significant).**

Table 29.40: Construction and Development: Significance of Tourism Economy Impacts on LEA?

	LEA
Sensitivity of Receptor	Minor
Magnitude of Impact	Negligible
Significance	Negligible Adverse (Not Significant)

Tourism and Recreation Asset Impacts

Description of Impact

~~236.~~239. As with the tourism economy in general, for the construction of an offshore windfarm to have an impact on tourism assets, visitors to these assets must be aware of this construction activity and change their behaviour as a result.

~~237.~~240. As with the tourism economy in general, for the construction of an offshore windfarm to have an impact on tourism assets, visitors to these assets must be aware of this construction activity and change their behaviour as a result.

~~238.~~241. The assessment has considered whether the construction of the Project would affect any of the tourism attractions identified in Section 29.4.3, including the marine recreation assets and the attractions identified in Table 29.19.

Table 29.41: Significant Effects Identified on Tourism and Recreation Assets

	Shipping and Navigation	SLVIA	LVIA	Traffic and Transport	Noise	Onshore Land Use
Marine Recreation	No	No	No	No	No	No
Gunby Hall	No	No	No	No	No	No
Skegness	No	Yes	No	No	No	No
Skegness Natureland Seal Sanctuary	No	No	No	No	No	No
Lincolnshire Wolds	No	No	No	No	No	No
The Parrot Zoo	No	No	No	No	No	No
Lincolnshire Wolds Railway	No	No	No	No	No	No
Louth Museum	No	No	No	No	No	No
Tattershall Castle	No	No	No	No	No	No
Macmillan Way	No	No	Yes	No	No	No
Local Caravan and Camping Sites	No	No	No	No	No	No

~~239.~~242. The significant effects identified as applicable to the construction, operation and decommissioning phases. Therefore, the assessment of effects on tourism and recreation assets applies to all three phases.

Magnitude

~~240.~~243. The assessment of other chapters, outlined in **Error! Reference source not found.** has identified significant effects on two tourism and recreation assets, specifically;

- there is expected to be significant seascape effects along the coast including in Skegness, as a result of the construction and operation of the ORCP(s); and
- there is expected to be significant landscape and visual impact effects along part of the Macmillan Way.

~~241.~~244. The magnitude of the change in tourism and recreation behaviour shall be assessed separately for each receptor.

~~242.~~245. The magnitude of the change in tourism behaviour in Skegness as a result of the visibility of the ORCP(s) is discussed earlier in this section. It is determined that the magnitude of the impact on visitor behaviour will be **Negligible**.

~~243.~~246. Two locations along the Macmillan Way are identified in Volume 1, Chapter 28: Landscape and Visual Assessment as having potentially significant impacts for walkers in the area. These are:

- Viewpoint 4: Macmillan Way at Ship Inn; and

- Viewpoint 5: Macmillan Way near Welland House Farm

~~244.~~247. For both locations the construction of the OnSS and its presence during the operational phase will be in contrast to the current local landscape, which is characterised by flat arable fields land and general agricultural buildings. At both locations the visibility of the OnSS will be for a short duration of the route and there will be a planting scheme to mitigate against visual impacts. The visibility of the OnSS at these points is therefore expected to result in a minor change of behaviour of users. The magnitude of the impact has therefore been assessed as **Minor**.

Sensitivity

~~245.~~248. The sensitivity of the tourism assets in Skegness to the visibility of the ORCP(s) is discussed earlier in this section. It is determined that the sensitivity of these assets has been assessed as **Minor**.

~~246.~~249. For recreational users of the Macmillan Way, the visual impact assessment states that walkers are more susceptible to such visual impacts as they have a heightened awareness of their surroundings. In addition to visual impacts, there are other factors which determine whether somebody will walk all of, or part of, the Macmillan Way route. These include raising money for charity and the health benefits of walking. The changes in landscape along part of the route are likely to have only a minor influence on the ability of the Macmillan Way to attract users and will have no influence in its ability to accommodate users. The sensitivity of the Macmillan Way is therefore assessed as being **Minor**.

Significance of Impact

~~247.~~250. Based on the assessments of sensitivity and magnitude, the effect of the construction, operation and decommissioning of the Project on tourism and recreation assets has been assessed as **Negligible – Not Significant** for tourism attractions in Skegness and **Minor – Not Significant** for the Macmillan Way.

Table 29.42: Significance of Tourism and Recreation Impacts

	Macmillan Way	Skegness Tourism Assets
Sensitivity of Receptor	Minor	Minor
Magnitude of Impact	Minor	Negligible
Significance	Minor Adverse – Not Significant	Negligible Adverse – Not Significant

29.8.3 Operations and Maintenance

Estimating O&M Expenditure

~~248.~~251. The O&M of the Project will generate economic impacts through the expenditure that will be required throughout the lifetime of the project.

~~249.~~252. Over the course of its lifetime, the Project is expected to invest between £5 billion and £7 billion. For the purposes of the analysis the expenditure is assumed to be in line with lower end of the range of total expenditure. It is assumed that £2.7 billion will be spent during

the development and construction of the project and therefor £2.3 billion will be spent during the operations and maintenance phase. Therefore, assuming a 35 year O&M period, it is estimated that in an average year, £66 million will be spent on the O&M of the Project.

~~250.~~253. This expenditure will include logistics costs, operational management, grid charges and the maintenance and service of both the WTGs and the wider balance of plant. The largest component of this will be the costs associated with the maintenance and service of the WTGs. It is expected that this activity will increase over time.

Estimating Distribution of Expenditure

~~251.~~254. The economic impacts from the development and construction of the Project have been estimated for the LEA, the Regional Area and the UK.

~~252.~~255. As discussed in Section 29.4.3 of this chapter, the UK Offshore Wind Sector Deal (UK Government, 2020a) has the target that projects constructed in 2030 will achieve 60% of UK content during their lifetime.

~~253.~~256. In line with the worst-case scenario analysis, it has been assumed that Project will not achieve this target but shall achieve the level of UK content that is typical of offshore wind projects in the UK that have been built to date. The Applicant estimates that between 45% and 60% of the lifetime expenditure of the project will be spent within the UK. The majority of the UK expenditure is expected to occur during the O&M stage.

~~254.~~257. Analysis by BVG Associates (BVG Associates, 2021) has found that on average 81% of total O&M spending for UK offshore wind projects is sourced domestically. In the worst case scenario it is assumed that a lower share of operations and maintenance expenditure will be secured from the UK. The estimated geographical distribution of UK content is shown in

~~255.~~258. The economic impacts from the development and construction of the Project have been estimated for the LEA, the Regional Area and the UK.

~~256.~~259. The Applicant estimates that between 45% and 60% of the lifetime expenditure of the project will be spent within the UK. As discussed in Section 29.4.3 of this chapter, the UK Offshore Wind Sector Deal (UK Government, 2020a) has the target that projects constructed in 2030 will achieve 60% of UK content during their lifetime. This includes the capital investment and the ongoing O&M expenditure. To meet this target, there will need to be significant investment in the manufacturing capabilities of the UK offshore wind supply chain. In line with the worst-case scenario analysis, it has been assumed that Project will not achieve this target and 45% of the expenditure will occur in the UK during the lifetime of the project. The majority of the UK expenditure is expected to occur during the operations and maintenance phase and for the purposes of the analysis, based on the lowest local content, it is assumed that 18% of capital expenditure (construction and Development) will be secured within the UK.

~~257.~~260. The distribution of contracts within the LEA and Regional Area are based on current industrial capabilities and the assumption that the primary O&M port will be within the LEA.

Table 29.43: Operations and Maintenance: Potential Expenditure by Category and Study Area

	LEA	Regional Area	UK	Imports
Share of O&M Expenditure	45%	63%	76%	24%

Note: BiGGAR Economics analysis of BVG Associates (2021) Totals may not sum due to rounding.

~~258.~~261. Over the approximately 35 year lifetime of the Project, this would be equivalent to an average annual spending of:

- £30 million in the LEA;
- £41 million in the Regional Area (including the LEA); and
- £50 million across the UK during the O&M phase of the Project.

~~259.~~262. This increased turnover in these companies will support employment and generate GVA within these economies.

Increase in GVA

Description of impact

~~260.~~263. In a similar way as for the construction phase, economic activity during the O&M phase will lead to changes in GVA.

Magnitude

~~261.~~264. The magnitude of the economic impact from the expenditure during the O&M phase has been estimated in line with the methodology outlined in Section 29.7 of this chapter. For the purposes of assessment, only the direct and indirect economic impacts are considered when determining the magnitude of the impact. These describe the economic activity required to realise the Project and are the focus of other economic assessments associated with offshore wind projects.

~~262.~~265. The induced impacts are quantified and presented for completeness but are not used in the assessment of magnitude.

~~263.~~266. As shown in Table 29.44 throughout the supply chain the O&M of the Project is expected to generate an annual total of:

- £17 million GVA in the LEA;
- £26 million GVA in the Regional Area; and
- £36 million GVA across the UK.

Table 29.44: O&M: Total GVA

	LEA	Regional Area	UK
Direct GVA (£m)	11	16	19
Indirect GVA (£m)	5	10	17
Total GVA (£m)	17	26	36
Induced GVA (£m)	4	7	15
Total GVA Including Induced (£m)	21	33	51

Note: Totals may not sum due to rounding.

~~264.~~267. In line with the approach described in Table 29.45, the magnitude of the effect on the economy of the LEA , Regional Area and the UK is considered to be Negligible, because it is equivalent to less than 0.25% of the total GVA of these economies.

Table 29.45: O&M: Magnitude of GVA Impact

	LEA	Regional Area	UK
GVA Impact (£m)	17	26	36
Current GVA of Study Area (2020, £m)	15,800	238,500	1,949,600
Peak GVA as % Current GVA	0.1%	<0.1%	<0.1%
Magnitude of Effect	Negligible	Negligible	Negligible

Sensitivity

~~265.~~268. The sensitivity of the economic receptors have been assessed as:

- The sensitivity of the economy of the LEA has been assessed as **Moderate**;
- The sensitivity of the economy of the Regional Area has been assessed as **Moderate**; and
- The sensitivity of the UK economy has been assessed as **Minor**.

Significance of Impact

~~266.~~269. Based on the assessments of sensitivity and magnitude, the effect of the O&M of the Project on the economy of the LEA was assessed as Minor – Not Significant. Its effect on the economy of the Regional Area was assessed as Minor – Not Significant. Its effect on the economy of the UK was assessed as Negligible - Not Significant.

Table 29.46: O&M: Significance of GVA Impact

	LEA	Regional Area	UK
Sensitivity of Receptor	Moderate	Moderate	Minor
Magnitude of Impact	Negligible	Negligible	Negligible
Significance	Minor Beneficial – Not Significant	Minor Beneficial – Not Significant	Negligible Beneficial – Not Significant

Increase in Annual Employment

Description of impact

~~267.~~270. The O&M of the Project will result in an increase in the turnover of those businesses supporting operational activities. Changes in turnover will support the jobs required to fulfil contracts.

~~268.~~271. The assessment of impacts on employment relies on the same assumptions that were adopted in the estimation of GVA impacts occurring during the O&M period.

Magnitude

~~269.~~272. The magnitude of the economic impact from the expenditure during the development and construction phase has been estimated in line with the methodology outlined

in Section 29.7 of this chapter. For the purposes of assessment, only the direct and indirect economic impacts are considered when determining the magnitude of the impact. These describe the economic activity required to realise the Project and are the focus of other economic assessments associated with offshore wind projects.

~~270.~~273. The induced impacts are quantified and presented for completeness but are not used in the assessment of magnitude.

~~271.~~274. The magnitude of the economic impact from the expenditure during the O&M phase has been estimated in line with the methodology outlined in 29.7 of this chapter. As shown in Table 29.47 , throughout the supply chain the O&M of the Project is expected to support a total of:

- 180 jobs in the LEA;
- 280 jobs in the Regional Area; and
- 400 jobs across the UK.

Table 29.47: O&M: Total Employment

	LEA	Regional Area	UK
Direct employment	120	160	200
Indirect employment	60	120	200
Total employment	180	280	400
Induced employment	50	80	150
Total employment Including Induced	230	360	550

Note: Totals may not sum due to rounding and values for study areas are inclusive

~~272.~~275. In line with the approach described above, the magnitude of the effect on the economy of the LEA is considered to be Negligible, because it is equivalent to less than 0.25% of the total employment in this area. Similarly, for both the economy of the Regional Area and the UK, the effect is considered to be Negligible as it is equivalent to less than 0.25% of the total number of jobs in these economies.

Table 29.48: O&M: Magnitude of Jobs Impact

	LEA	Regional Area	UK
Jobs Impact	180	280	400
Current total Jobs in Study Area	741,900	4,721,750	32,172,000
Peak GVA as % Current GVA	<0.1%	<0.1%	<0.1%
Magnitude of Effect	Negligible	Negligible	Negligible

Note: Values are reported inclusively for each study area

Sensitivity

~~273.~~276. The sensitivity of the economic receptors have been assessed as:

- The sensitivity of the economy of the LEA has been assessed as **Moderate**;

- The sensitivity of the economy of the Regional Area has been assessed as **Moderate**; and
- The sensitivity of the UK economy has been assessed as **Minor**.

Significance of Impact

~~274.~~277. Based on the assessments of sensitivity and magnitude, the effect of the O&M of the Project on the economy of the LEA was assessed as **Minor – Not Significant**. Its effect on the economy of the Regional Area was assessed as **Minor – Not Significant**. Its effect on the economy of the UK was assessed as **Negligible – Not Significant**.

Table 29.49: O&M: Significance of Jobs Impact

	LEA	Regional Area	UK
Sensitivity of Receptor	Moderate	Moderate	Minor
Magnitude of Impact	Negligible	Negligible	Negligible
Significance	Minor Beneficial – Not Significant	Minor Beneficial – Not Significant	Negligible Beneficial – Not Significant

UK Vegetable Market Impact

278. The impacts during the operational phase on food security of the UK have been considered in line with the approach for assessing the impact of the changes in land use on the food security of the UK applied to the development and construction phase. The effect during the development and construction phase is negligible, and the magnitude of the change during the operational phase will be considerably. The assessment of agricultural land lost during the operational phase in Volume 1, Chapter 25: Land Use (document reference 6.1.25) estimates that ~~26.38~~ 36.48 ha of land will be lost as a result of the project. This is 7~~6~~% of the average land take during the development and construction phase.~~.~~ Therefore, the effect during the operational phase is also assessed as negligible.

29.8.4 Decommissioning

Economic Impacts

Description of impact

~~275.~~279. The decommissioning of the Project will also generate economic activity. The number of offshore wind developments that have undergone decommissioning to date is limited, therefore estimates of the costs and activities associated with decommissioning an offshore windfarm of this scale are based on projections, rather than experience.

~~276.~~280. As with the construction and operational expenditure, it is projected that an offshore windfarm of this scale will require approximately £450 million of spend (based on current prices). This will require the removal of the WTGs, foundations, cables, and the substation. The operational life of the Project is expected to be approximately 35 years and therefore any decommissioning impacts is likely to occur in the 2060s. At this stage, there is the potential for significant supply chain development within the UK to meet the installation and decommissioning demands of the offshore wind sector. However, in line with a worst-case scenario approach it is assumed that the companies who undertake the decommissioning works

will be based in the same geographic areas as those who complete the installation works during the development and construction phase.

~~277.~~281. Therefore, it is estimated that the UK will secure 18% of the contracts associated with the decommissioning of the Project, which is equivalent to contracts with a value of £81 million. It is assumed that all of these works will be completed within the LEA, where the decommissioning port will be based.

Table 29.50: Decommissioning: Distribution of Contracts

	LEA	Regional Area	UK
Value of Decommissioning Contracts (£m)	81	81	81
Split of Decommissioning Contract	18%	18%	18%

Note: Totals may not sum due to rounding and values are reported inclusively for each study area

Magnitude

~~278.~~282. As with the development and construction phase the magnitude of the economic impact from the expenditure during the decommissioning phase has been estimated in line with the methodology outlined in 29.7 of this chapter. It is estimated that the total economic impact from this expenditure will support:

- 220 years of employment and generate £47 million GVA in the LEA;
- 250 years of employment and generate £52 million GVA in the Regional Area; and
- 320 years of employment and generate £64 million GVA across the UK.

~~279.~~283. It is assumed that the decommissioning work will last for two years and therefore, at its peak the decommissioning of the Project will support 110 jobs in the LEA and 160 jobs across the UK.

Table 29.51: Decommissioning: Economic Impacts

	LEA	Regional Area	UK
Total Decommissioning Economic Impact			
Total GVA Impact (£m)	47	52	64
Total Jobs Impact (Years of Employment)	220	250	320
Peak Decommissioning Economic Impact			
Peak GVA Impact (£m)	23	26	32
Peak Jobs Impact (Jobs)	110	130	160

Note: Totals may not sum due to rounding and values are reported inclusively for each study area

~~280.~~284. In line with the guidance (UK Government, 2020b) on assessing long term economic impacts, the GVA impacts of the decommissioning activity has been discounted before assessing the magnitude of effect. The discounted peak values of GVA are shown in Table 29.52.

Table 29.52: Decommissioning: Discounted GVA Impacts

	LEA	Regional Area	UK
Peak GVA Impact (£m)	23	26	32
Peak GVA Impact Discounted (£m)	6	6	8

Note: Totals may not sum due to rounding.

~~281.~~285. In line with the approach above, the magnitude of the economic impacts are determined based on the change in GVA or employment, relative to the current GVA or employment levels. The value of GVA and the number of jobs in each of the study areas in the 2060s is not known and so current values are used to give an indicative measure of magnitude.

~~282.~~286. As shown in Table 29.53, the change in employment and GVA is equivalent to less than 0.1% of the current GVA and jobs in each of the study areas. The magnitude of all economic impacts during the decommissioning phase has therefore been assessed as negligible.

Table 29.53: Decommissioning: Magnitude of Economic (Employment and GVA) Impacts

	LEA	Regional Area	UK
Magnitude of employment impacts			
Peak Employment (Jobs)	110	130	160
Current Jobs	742,000	4,722,000	32,172,000
Peak Jobs as % Current Jobs	<0.1%	<0.1%	<0.1%
Magnitude of Effect	Negligible	Negligible	Negligible
Magnitude of GVA impacts			
Peak GVA Impact Discounted (£m)	6	6	8
Current GVA of Study Area (2020, £m)	15,800	238,500	1,949,600
Peak GVA as % Current GVA	<0.1%	<0.1%	<0.1%
Magnitude of Effect	Negligible	Negligible	Negligible

Note: Values are reported inclusively for each study area

Sensitivity

~~283.~~287. The sensitivity of the economy within the LEA have been identified as **Moderate**, based on data to 2022. The relative performance of the economy of the LEA in the 2060s is not possible to predict. No changes have been made to the sensitivity of the economy of the LEA for the decommissioning period.

~~284.~~288. Similarly, the sensitivity of the economies of the Regional Area and the UK have been assessed as **Moderate** and **Minor** respectively.

Significance of Impact

~~285.~~289. Based on the assessments of sensitivity and magnitude, the effect of the decommissioning of the Project across each of the economic study areas was assessed as **Minor – Not Significant** for the LEA and Regional Area and **Negligible – Not Significant** for the UK.

Table 29.54: Decommissioning: Significance of Economic Assets Impacts

	LEA	Regional Area	UK
Sensitivity of Receptor	Moderate	Moderate	Minor
Magnitude of Impact	Negligible	Negligible	Negligible
Significance	Minor Beneficial – Not Significant	Minor Beneficial –	Negligible Beneficial –

	LEA	Regional Area	UK
		Not Significant	Not Significant

Social and Community Asset Impacts

Description of impact

~~286.~~290. As with the construction period, the potential for a significant influx of transient workers having an impact of community and social assets has been scoped into this assessment. This assessment considers the potential impacts associated with a change in demand for housing, educational and healthcare facilities as a result of this workforce.

Magnitude

~~287.~~291. It is expected that on average the population of the LEA is projected to grow by 4,840 per year between 2018 and 2043. The ONS does not publish population projections beyond the 2040s and therefore, it has been assumed that this growth will continue and form the basis of the assessment for the 2040s. The peak employment that will be supported in the LEA during the decommissioning of the Project is estimated to be 130 jobs. This is equivalent to 3% of the projected annual population growth for the LEA.

~~288.~~292. The majority of the economic activity within the LEA will be focused around the activities of the decommissioning port and on the decommissioning of offshore infrastructure, such as the WTGs. As discussed in Section 29.4.3 of this chapter, the Humber Energy Strategy has identified the offshore wind sector as a long term opportunity for the area. This is based on a pipeline of offshore wind energy projects in the North Sea that will have demand for installation and decommissioning facilities in the Humber area. It would therefore be expected that the majority of the employment supported in the area will use a workforce that is based in the area.

~~289.~~293. If it was assumed that 25% of the workforce that was employed during the peak activity were new to the area, this would be equivalent to less than 1% of average annual population growth. In line with the approach to determining the magnitude of social and community asset impacts outlined in Table 29.55 magnitude of this impact has been assessed as **Negligible**.

Table 29.55: Decommissioning: Magnitude of Social and Community Asset Impacts

	LEA
Peak Population Increase	33
Average Population Increase (2018 – 2043)	4,840
Peak Population Increase as % Normal Population growth	<1%
Magnitude of Effect	Negligible

Sensitivity

~~290.~~294. The sensitivity of the social and community assets within the LEA have been identified as Minor, based on data to 2022. The relative performance of the housing market,

healthcare provision and education facilities in the LEA in the 2060s is not possible to predict. Over the long term, all of these assets, in theory, have a high level of adaptability and will adjust to meet the needs of the community in the LEA. For example, the allocation of public funding for healthcare and education is linked to the demographic needs of communities. No changes have been made to the sensitivity of the community and social assets within the LEA for the decommissioning period.

Significance of Impact

~~291.~~295. Based on the assessments of sensitivity and magnitude, the effect of the decommissioning of the Project on the social and community assets of the LEA was assessed as **Negligible - Not Significant**.

Table 29.56: Decommissioning: Significance of Social and Community Asset Impacts

	LEA
Sensitivity of Receptor	Minor
Magnitude of Impact	Negligible
Significance	Negligible Adverse – Not Significant

29.9 Cumulative Impact Assessment

~~292.~~296. This cumulative impact assessment for socio-economics, tourism and recreation has been undertaken in accordance with the methodology provided in Volume 3, Appendix 5.3: Onshore Cumulative Effects Assessment Approach (document reference 6.3.5.3).

~~293.~~297. In theory, the existence of developments close to the Project could have an impact upon socio-economics, tourism and recreation. Regarding impacts on socio-economics, the presence of multiple developments may contribute to the creation of economies of scale and the development of robust supply chains, including through the entry of new businesses or the expansion of existing ones.

~~294.~~298. The projects and plans scoped in as relevant 'other developments' to the assessment of cumulative impacts to socio-economics, tourism and recreation are based upon a screening exercise undertaken on an initial long list of reasonably foreseeable other developments located within the Project's zone of influence; be it consented schemes not built out or schemes for which planning consent is actively being sought.

~~295.~~299. Each project, plan or activity been considered and scoped in or out on the basis of effect-receptor pathway, data confidence and the temporal and spatial scales involved.

~~296.~~300. The determination of the short list of other developments is documented in Annex A of Appendix 5.3 (document reference 6.3.5.3).

~~297.~~301. The other development scoped into the cumulative impact assessment of socio-economics, tourism and recreation are presented in Table 29.57 .

Table 29.57: Other Developments considered within the socio-economics, tourism and recreation cumulative effect assessment

Development Type	Development Name	Status	Data confidence assessment/phase	Tier
Offshore Wind	Triton Knoll	Active/In Operation	High	Tier 1
Offshore Wind	Dudgeon Extension	Consented~~Under Examination~~	High	Tier 1
Offshore Wind	Hornsea Project Two (HOW02)	Active/In Operation~~Operational~~	High	Tier 1
Offshore Wind	Dudgeon	Active/In Operation	High	Tier 1
Offshore Wind	Hornsea Project One (HOW01)	Active/In Operation	High	Tier 1
Offshore Wind	Race Bank	Active/In Operation	High	Tier 1
Offshore Wind	Sheringham Shoal Extension	Consented~~Under Examination~~	High	Tier 1
Offshore Wind	Sheringham Shoal	Active/In Operation	High	Tier 1
Offshore Wind	Hornsea Project Four (HOW04)	Consented	High	Tier 1
Offshore Wind	Lincs	Active/In Operation	High	Tier 1
Offshore Wind	Humber Gateway	Active/In Operation	High	Tier 1
Offshore Wind	Inner Dowsing	Active/In Operation	High	Tier 1
Offshore Wind	Lynn	Active/In Operation	High	Tier 1
Offshore Wind	Hornsea Project Three (HOW03)	Consented	High	Tier 1
Offshore Wind	Westermost Rough	Active/In Operation	High	Tier 1
Offshore Wind	Norfolk Vanguard West	Consented	High	Tier 1
Offshore Wind	Norfolk Boreas	Consented	High	Tier 1
Offshore Wind	Scroby Sands	Active/In Operation	High	Tier 1
Offshore Wind	Norfolk Vanguard East	Consented	High	Tier 1
Offshore Wind	Dogger Bank A	Under Construction	High	Tier 1
Offshore Wind	East Anglia THREE	Under Construction~~Consented~~	High	Tier 1
Offshore Wind	Dogger Bank B	Under Construction	High	Tier 1
Offshore Wind	East Anglia ONE NORTH	Under Construction~~Consented~~	High	Tier 1
Offshore Wind	Sofia	Under Construction	High	Tier 1
Offshore Wind	East Anglia TWO	Consented	High	Tier 1
Offshore Wind	East Anglia ONE	Active/In Operation	High	Tier 1
Offshore Wind	Dogger Bank C	Under Construction	High	Tier 1

Development Type	Development Name	Status	Data confidence assessment/phase	Tier
Offshore Wind	North Falls	Pre-planning Application	High	Tier 1
Offshore Wind	Galloper	Active/In Operation	High	Tier 1
Offshore Wind	Greater Gabbard	Active/In Operation	High	Tier 1
Offshore Wind	Five Estuaries Offshore Wind Farm Limited	Pre-planning Application	High	Tier 1
Offshore Wind	Teesside	Active/In Operation	High	Tier 1
Subsea Cables	East Green Link 3 (EGL 3) and East Green Link 4 (EGL 4)	Pre-planning Application	High	Tier 2
Solar Farm	Vicarage Drove Solar Farm	Consented	~~Medium~~High	Tier 1
Residential	89 Dwellings at Land off West End, Hogsthorpe	~~Consented~~Planning Application	Medium	Tier 1
Residential	Gaysfield Road - 66 Dwellings (20 affordable)	Consented	High	Tier 1
Residential	Puttock Gate – 11 Dwellings	Consented	High	Tier 1
Energy from waste facility	Boston Alternative Energy Facility	Consented	~~Medium~~High	Tier 1
Solar Farm	Heckington Fen Solar Park	~~Under Examination~~Consented	Medium	Tier 1
Solar Farm	Low Farm Solar Farm	Consented	~~Medium~~High	Tier 1
Solar Farm	Red House Farm Solar Panels	~~Under Examination~~Application Refused (Appeal Possible)	Medium	Tier 1
Solar Farm	Moulton Bulb, Long Lane – Solar Array	Consented	~~Medium~~High	Tier 1
Solar Farm	Little Hale Drove Solar Array	~~Under Examination~~Consented	Medium	Tier 1
Solar Farm (and Battery	Temple Oaks Renewable Energy Park	Pre-planning Application	Medium	Tier 2

Development Type	Development Name	Status	Data confidence assessment/phase	Tier
Storage Energy System)				
Substation	National Grid Substation potentially at Weston Marsh	Pre-planning Application	Low	Tier 3
Agricultural	Naylor Farms plant-based protein extraction facility and anaerobic digestor plant	Planning Application	~~Low~~Medium	Tier3

~~298.~~302. The first step in the assessment of cumulative impacts involves screening for potential impacts from which there may be cumulative implications. All the potential impacts considered in this assessment and the significance of which has been assessed at least as **'Negligible - not significant'** have been included in the maximum design scenario table below.

Table 29.58: Cumulative MDS

Impact	Scenario	Justification
Construction		
Economic impacts	All Projects	Combined expenditure and employment supported by the construction of offshore and onshore elements of the listed projects. Multiple construction projects have the potential to lead to the attraction of investment and to strengthen local supply chains, with implications on the level of GVA supported by each project.
Tourism sector impacts	All Tier 1 Projects	The Project, in combination with other cumulative projects, have a cumulative environmental effect which has an impact on the key tourism assets in the LTRA. Multiple developments have the potential to have cumulative environmental impacts which may have an effect on tourism or recreation assets.
Tourism and recreational assets impacts	All Tier 1 Projects	The Project, in combination with other cumulative projects, have a cumulative environmental effect which has an impact on the key tourism assets in the LTRA.

Impact	Scenario	Justification
		Multiple developments have the potential to have cumulative environmental impacts which may have an effect on tourism or recreation assets.
Social and community asset impacts	All Tier 1 Projects	Cumulative employment supported by the listed projects has an impact of greater magnitude on the housing, educational and health facilities in the LEA.
Operations		
Economic impacts	All Tier 1 Projects	Combined expenditure and employment supported by the O&M of offshore and onshore elements of the listed projects. Multiple construction projects have the potential to lead to the attraction of investment and to strengthen local supply chains, with implications on the level of GVA supported by each project.
Tourism sector impacts	All Tier 1 Projects	The Project, in combination with other cumulative projects, have a cumulative environmental effect which has an impact on the key tourism assets in the LTRA. Multiple developments have the potential to have cumulative environmental impacts which may have an effect on tourism or recreation assets.
Tourism and recreational assets impacts	All Tier 1 Projects	The Project, in combination with other cumulative projects, have a cumulative environmental effect which has an impact on the key tourism assets in the LTRA. Multiple developments have the potential to have cumulative environmental impacts which may have an effect on tourism or recreation assets.
Social and community asset impacts	All Tier 1 Projects	Cumulative employment supported by the listed projects has an impact of greater magnitude on the housing, educational and health facilities in the LEA.

~~299.~~303. At this stage of the assessment, it is not possible to quantify the potential magnitude of the cumulative impacts. Therefore, these effects are discussed qualitatively.

Cumulative Economic Impacts

~~300.~~304. The cumulative effect of the other developments outlined in Table 29.57 will be a significant level of demand for services and goods to support the offshore wind energy sector and the wider construction sector for onshore projects, particularly within the LEA. This would include demand for port services, vessels, manufacturing facilities and labour. This demand will drive the investment required in the sector, in port facilities, manufacturing facilities and skills development.

~~301.~~305. Without the cumulative developments, there would be reduced chance of supply chain development in the LEA, Regional Area or the Wider UK. Without this development, the UK would be unlikely to meet the targets it has set for either the deployment of offshore wind, or the supply chain development that is outlined in Section 280. The cumulative impact of these developments is therefore to enable the supply chain to realise the beneficial impacts greater than those identified earlier in this Chapter.

Cumulative Tourism Impacts

~~302.~~306. The environmental disciplines that have identified significant effects on tourism and recreation assets are:

- Seascape, Landscape and Visual (see Chapter 17 (document reference 6.1.17); and
- Landscape and Visual (see Chapter 28 (document reference 6.1.28).

~~303.~~307. In respect of the Seascape, Landscape and Visual resource the Project has the potential to increase the magnitude of the impact on tourism assets in Skegness and the neighbouring coastline. The cumulative assessment for SLVIA in Lincolnshire, where the tourism assets are located has been assessed as either low or negligible in magnitude. In addition, the sensitivity of these assets to changes in the seascape has been assessed as negligible, based on previously constructed offshore wind projects in the area. Therefore, any cumulative tourism impacts are also likely to be **Negligible**.

~~304.~~308. The cumulative assessment ~~-~~of the Landscape and Visual resource indicates that there is the potential for significant cumulative effects to arise on the Macmillan Way as a result of the OnSS and the National Grid Substation at Weston Marsh. The cumulative visual effects will increase the duration of the route in which these structures will be visible. However the length of time the cumulative structures will be visible to recreational users, as a proportion of the route, will not increase substantially. Therefore, the cumulative effect on recreational users has also been assessed as Minor.

Cumulative Social and Community Asset Impacts

~~305.~~309. The cumulative effect of the developments outlined in Table 29.57 will be a significant level of demand for services and goods to support the offshore wind energy sector, particularly within the LEA. The cumulative employment impacts would also generate cumulative demand for social and community assets.

~~306.~~310. Social and community assets respond to the long term needs of the communities that they serve. The cumulative employment would create long term opportunities for residents to move to, or stay in the area. This would justify investment in assets, such as housing or schools, to meet the demands of these residents. These opportunities would also help to counteract working age depopulation pressures which are projected to affect the area and would contribute to the sustainability of these services. Therefore, the cumulative social and community asset impacts are likely to be beneficial.

~~307.~~311. In the short term, there is the potential that the cumulative effect of employment result in a greater share of the workforce in the LEA being new to the area. As shown in Table

29.59, over 75% of peak employees would need to be new to the area before the magnitude of the change would no longer be negligible.

Table 29.59: Magnitude of different shares of peak employees being new to the LEA

Share of peak employees new to the area	Number of peak employees new to the area	Share of annual population growth	Magnitude
25%	370	8%	Negligible
50%	740	15%	Negligible
75%	1,110	23%	Negligible
100%	7,480	31%	Minor

~~308.~~312. If the cumulative effect resulted in all peak workers being additional to the area, the significance of the effect would be **Minor – not significant**.

Cumulative UK Vegetable Market Impact

Magnitude

~~309.~~313. The cumulative effect of the developments outlined in Table 29.57 include those that will contribute to the loss of agricultural land in Lincolnshire. The cumulative employment impacts would also generate cumulative demand for social and community assets.

~~310.~~314. Across Lincolnshire there are 14 Nationally Significant Infrastructure Projects (NSIPs) that could also contribute to loss of agricultural land. These projects are shown in Table 29.60. This shows that across Lincolnshire these projects have the potential to use ~~10,034~~10,460 ha of land.

~~311.~~315. However, analysis Volume 1, Chapter 25: Land Use (document reference 6.1.25) shows that ~~390~~4,711.80 ha will be best and most versatile land (BMV)~~, such as that listed as Grade 1 Agricultural Land~~. For the purposes of the cumulative assessment, it is assumed that the BMV land would be that which is used to grow vegetables.

Table 29.60 NSIPs in Lincolnshire on BMV land

Name	Development	Reference	LCC	Area in LCC (ha)	BMV Land (ha)
Cottam Solar Project	Three electricity generating stations, each with anticipated capacity in excess of 50MW	EN010133	100%	1,270	48.10~~4~~
Gate Burton Energy Park	Generation, storage and export of up to 500MW electrical generation capacity	EN010131	100%	652	73.60~~2~~
West Burton Solar Project	Four electricity generating stations, each with anticipated capacity in excess of 50MW	EN010132	100%	756.8	199.50~~2~~
Mallard Pass Solar Farm	Generation capacity of greater than 50MW	EN010127	38.43%	327.42	83.01~~4.2~~

Boston Alternative Energy Facility (BAEF)	102MWe gross (80MWe exportable) energy from waste facility with light weight aggregates facility, wharf, waste reception and storage	EN010095	100%	26.8	26.76~~15.7~~
Temple Oaks Renewable Energy Park	250MW Solar Farm, accompanied by 400MWh Battery Energy Storage System	EN010126	100%	350	342.00~~0~~
Heckington Fen Solar Park	Solar Farm exceeding 50MW with associated energy storage	EN010123	100%	524	257.00~~312.2~~
Tillbridge Solar Project	Solar farm with a generation capacity of greater than 50MW	EN010142	100%	1,400	60.30~~11~~
Beacon Fen Energy Park	Solar Generation and Battery Storage Project with generating capacity of approximately 600MW and similar capacity for energy storage	EN010152	100%	528	528.18~~20.6~~
Springwell Solar Farm	Solar farm with a generation capacity and storage capacity of greater than 50MW	EN010149	100%	1,702	308.00~~0~~
Fosse Green Energy	320-350MW Solar Farm, accompanied by 480MWh Battery Energy Storage System	EN010154	100%	1,003	1,046.13~~10~~
One Earth Solar Farm	740MW Solar Farm, accompanied by 480MWh Battery Energy Storage System	EN010159	17%	255 (1,500 in total)	117.13~~2.5~~
Lincolnshire Reservoir	50 million cubic metre (m3) reservoir and water treatment works	WA010003	100%	1,622	1,622.09~~6~~
Total				10,460	4,711.80~~390~~

~~312.~~316. The total loss experienced within Lincolnshire as a result of other NSIPs would amount to approximately ~~390~~4,711.80 ha of BMV land. However, it is noted that this is inclusive of the widest study areas, temporary working areas and/or areas which will be temporary lost to the presence of solar panels which could be returned to agricultural land following the cessation of the operation of the respective development. With the inclusion of the permanent loss of agricultural land as a result of the Project, the total loss of agricultural land for the vegetable market in Lincolnshire would be 4,748 ~~417~~ ha during the operations and maintenance phase.

~~313.~~317. In line with the methodology applied in Section 29.8.2, the reduction in land available would be equivalent to a 0.27~~02~~% increase in the price of vegetables. This has therefore been assessed as **Minor~~negligible~~.**

Table 29.61: Cumulative: Magnitude of UK Vegetable Market Impact

	Value
Reduction in available land (ha)	4,748 ~~417~~
Average decrease in Vegetable Production Land required for 1% increase in price (ha)	17,700
Equivalent change in price	0.27~~02~~%
Magnitude of Change	~~Negligible~~Minor

Sensitivity

~~314.~~318. The sensitivity of the vegetable market in the UK has been assessed as **Minor**.

Significance of Impact

~~315.~~319. Based on the assessments of sensitivity and magnitude, the cumulative effect on the UK vegetable market was assessed as ~~Negligible~~Minor **- Not Significant.**

Table 29.62: Development and Construction: Significance of UK vegetable Impacts

	LEA
Sensitivity of Receptor	Minor
Magnitude of Impact	~~Negligible~~Minor
Significance	~~Negligible~~Minor Adverse – Not Significant

29.10 Inter-Relationships

29.10.1 Interactions

~~316.~~320. An assessment of whether the impacts identified and assessed in this chapter have the potential to interact with each other.

~~317.~~321. Inter-related effects consider impacts from the construction, operation or decommissioning of the Project on the same receptor (or group).

~~318.~~322. 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.

~~319.~~323. Th assessment of potential effects on Socio-Economics, Recreation and Tourism receptors has inherently considered interrelationships between human environment receptors and potential secondary effects arising from impacts identified in other chapters presented in Volume 1 of the ES, including;

- Chapter 14: Commercial Fisheries;

- Chapter 15: Shipping and Navigation;
- Chapter 17: Seascape, Landscape and Visual;
- Chapter 18: Infrastructure and Other Marine Users;
- Chapter 25: Land Use;
- Chapter 26: Noise and Vibration;
- Chapter 27: Traffic and Transport; and
- Chapter 28: Landscape and Visual Assessment.

~~320.~~324. The effects on Socio-Economics., Recreation and Tourism are not anticipated to interact in such a way as to result in combined effects of greater significance on any other impact identified elsewhere in the ES.

29.11 Transboundary Effects

~~321.~~325. Transboundary effects have been scoped out of the assessment for Socio-Economics, Recreation and Tourism.

29.12 Conclusions

~~322.~~326. The assessment of socio-economic, tourism and recreation effects concludes that the Project will have minor and not significant, beneficial effects on the economy of the LEA during the development and construction.

~~323.~~327. The assessment has identified positive effects on the economy of the LEA, the Regional Area and the UK during both the O&M and decommissioning phases, however the magnitude of these impacts are not significant in EIA terms.

~~324.~~328. The assessment has identified no significant impacts on social and community assets.

Table 29.63: Summary of Project effects for Socio-Economics, Recreation and Tourism

Impact	Effect	Additional Mitigation Measures	Residual Impact
Construction			
Economic Activity in the LEA (GVA)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the LEA (Employment)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the Regional Area (GVA)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the Regional Area (Employment)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)

Impact	Effect	Additional Mitigation Measures	Residual Impact
Economic Activity in the UK (GVA)	Negligible Beneficial (Not Significant)	N/A	Negligible Beneficial (Not Significant)
Economic Activity in the UK (Employment)	Negligible Beneficial (Not Significant)	N/A	Negligible Beneficial (Not Significant)
UK Vegetable Market	Negligible Adverse (Not Significant)	N/A	Minor ~~Negligible~~ Adverse (Not Significant)
Social and Community Asset Impacts	Negligible Adverse (Not Significant)	N/A	Negligible Adverse (Not Significant)
Tourism Economy Impact in the LTRA	Negligible Adverse (Not Significant)	N/A	Negligible Adverse (Not Significant)
Tourism Assets in Skegness	Negligible Adverse (Not Significant)	N/A	Negligible Adverse (Not Significant)
Recreational Use of the Macmillan Way	Minor Adverse (Not Significant)	N/A	Minor Adverse (Not Significant)
Operation and Maintenance			
Economic Activity in the LEA (GVA)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the LEA (Employment)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the Regional Area (GVA)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the Regional Area (Employment)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the UK (GVA)	Negligible Beneficial (Not Significant)	N/A	Negligible Beneficial (Not Significant)
Economic Activity in the UK (Employment)	Negligible Beneficial (Not Significant)	N/A	Negligible Beneficial (Not Significant)
UK Vegetable Market	Negligible Adverse (Not Significant)	N/A	Minor ~~Negligible~~ Adverse (Not Significant)
Tourism Economy Impact in the LTRA	Negligible Adverse (Not Significant)	N/A	Negligible Adverse (Not Significant)
Tourism Assets in Skegness	Negligible Adverse (Not Significant)	N/A	Negligible Adverse (Not Significant)
Recreational Use of the Macmillan Way	Minor Adverse (Not Significant)	N/A	Minor Adverse (Not Significant)
Decommissioning			
Economic Activity in the LEA (GVA)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the LEA (Employment)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)

Impact	Effect	Additional Mitigation Measures	Residual Impact
Economic Activity in the Regional Area (GVA)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the Regional Area (Employment)	Minor Beneficial (Not Significant)	N/A	Minor Beneficial (Not Significant)
Economic Activity in the UK (GVA)	Negligible Beneficial (Not Significant)	N/A	Negligible Beneficial (Not Significant)
Economic Activity in the UK (Employment)	Negligible Beneficial (Not Significant)	N/A	Negligible Beneficial (Not Significant)
Social and Community Asset Impacts	Negligible Adverse (Not Significant)	N/A	Negligible Adverse (Not Significant)

29.13 References

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