WHITE CROSS

White Cross Offshore Windfarm Environmental Statement

Chapter 21: Socio-economics, Tourism and Recreation

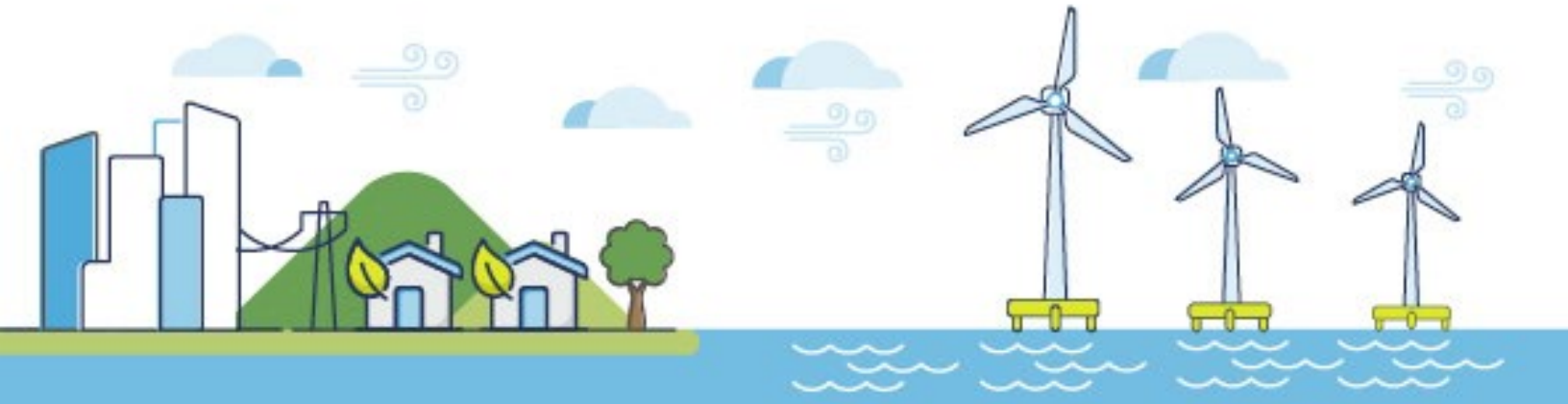

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Table of Contents

Table of Figures

Table of Tables

Appendices

Glossary of Acronyms

Acronym	Definition
AONB	Area of Outstanding Natural Beauty
BEIS	Department for Business, Energy and Industrial Strategy
CEA	Cumulative Effect Assessment
EEA	European Economic Area
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETG	Expert Topic Group
GBDVS	Great Britain Day Visitor Survey
GBTS	Great Britain Tourism Survey
GDP	Gross Domestic Product
GVA	Gross Value Added
HDD	Horizontal Directional Drilling
IEMA	Institute of Environmental Management and Assessment
LVIA	Landscape and Visual Impact Assessment
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MW	Megawatts
NDDC	North Devon District Council
NE	Natural England
NISRA	Northern Ireland Statistics Research Agency
NPPF	National Planning Policy Framework
NPPG	The National Planning Practice Guidance
NPS	National Policy Statement
NRS	National Records of Scotland
NSIP	Nationally Significant Infrastructure Project
ONS	Office for National Statistics
OWF	Offshore Wind Farm
WCOWL	White Cross Offshore Windfarm Limited
PDE	Project Design Envelope
RLB	Red Line Boundary
ROWIP	Rights of Way Improvement Plans
RSPB	Royal Society for the Protection of Birds
UK	United Kingdom

Glossary of Terminology

Defined Term	Description
Applicant	White Cross Offshore Windfarm Limited.
Cumulative effects	The effect of the Project taken together with similar effects from a number of different projects, on the same single receptor/resource. Cumulative Effects are those that result from changes caused by other past, present or reasonably foreseeable actions together with the Project.
Department for Business, Energy and Industrial Strategy (BEIS)	Government department that is responsible for business, industrial strategy, science and innovation and energy and climate change policy and consent under Section 36 of the Electricity Act.
Engineer, Procure, Construct and Install	A common form of contracting for offshore construction. The contractor takes responsibility for a wide scope and delivers via own and subcontract resources.
Environmental Impact Assessment (EIA)	Assessment of the potential impact of the proposed Project on the physical, biological and human environment during construction, operation and decommissioning.
Export Cable Corridor	The area in which the export cables will be laid, either from the Offshore Substation or the inter-array cable junction box (if no offshore substation), to the NG Onshore Substation comprising both the Offshore Export Cable Corridor and Onshore Export Cable Corridor.
Indirect Impact	Economic impact associated with the spending taking place across the supply chain of those businesses involved in the development, construction and operations and maintenance of the Project's Onshore Infrastructure.
Induced Impact	Economic impact associated with the spending across the economy of those workers involved in the development, construction and operations and maintenance of the Project's Onshore Infrastructure.
Landfall	Where the offshore export cables come ashore.
Mean high water springs	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean low water springs	The average tidal height throughout a year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean sea level	The average tidal height over a long period of time.

Defined Term	Description
Mitigation	Mitigation measures have been proposed where the assessment identifies that an aspect of the development is likely to give rise to significant environmental impacts, and discussed with the relevant authorities and stakeholders in order to avoid, prevent or reduce impacts to acceptable levels. For the purposes of the EIA, two types of mitigation are defined: • Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the project design, and form part of the project design that is assessed in the EIA • Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant impacts. Additional mitigation is therefore subsequently adopted by OWL as the EIA process progresses.
National Grid Onshore Substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of the electrical transformers.
National Grid Connection Point	The point at which the White Cross Offshore Windfarm connects into the distribution network at East Yelland substation and the distributed electricity network. From East Yelland substation electricity is transmitted to Alverdiscott where it enters the national transmission network.
Onshore Development Area	The onshore area above MLWS including the underground onshore export cables connecting to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland. The onshore development area will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990.
Onshore Export Cables	The cables which bring electricity from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.
Onshore Export Cable Corridor	The proposed onshore area in which the export cables will be laid, from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.
Onshore Infrastructure	The combined name for all infrastructure associated with the Project from MLWS at the Landfall to the NG grid connection point at East Yelland. The onshore infrastructure will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990.
the Onshore Project	The Onshore Project for the onshore TCPA application includes all components onshore of MLWS. This includes the infrastructure associated with the offshore export cable (from MLWS), landfall,

Defined Term	Description
	onshore export cable and associated infrastructure and new onshore substation (if required).
White Cross Offshore Windfarm Ltd	White Cross Offshore Windfarm Ltd (WCOWL) is a joint venture between Cobra Instalaciones Servicios, S.A., and Flotation Energy Ltd.
the Project	the Project is a proposed floating offshore windfarm called White Cross located in the Celtic Sea with a capacity of up to 100MW. It encompasses the project as a whole, i.e. all onshore and offshore infrastructure and activities associated with the Project.
Project Design Envelope	A description of the range of possible components that make up the Project design options under consideration. The Project Design Envelope, or 'Rochdale Envelope' is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact parameters are not yet known but a bounded range of parameters are known for each key project aspect.
Transition joint bay	Underground structures at the Landfall that house the joints between the offshore export cables and the onshore export cables.
White Cross Onshore Substation	A new substation built specifically for the White Cross project. It is required to ensure electrical power produced by the offshore windfarm is compliant with NG electrical requirements at the grid connection point at East Yelland.
Wind Turbine Generators (WTG)	The wind turbine generators convert wind energy into electrical power. Key components include the rotor blades, nacelle (housing for electrical generator and other electrical and control equipment) and tower. The final selection of project wind turbine model will be made post-consent application.
Windfarm Site	The area within which the wind turbines, Offshore Substation Platform and inter-array cables will be present.
Works completion date	Date at which construction works are deemed to be complete and the windfarm is handed to the operations team. In reality, this may take place over a period of time.

21 Socio-economics, Tourism and Recreation

21.1 Introduction

1. This chapter of the Environmental Statement (ES) presents the potential impacts on Socio-economics, tourism and recreation of the White Cross Offshore Windfarm Project (the Onshore Project). Specifically, it considers impacts landward of Mean Low Water Springs (MLWS) during its construction, operation and maintenance, and decommissioning phases.

2. The ES has been finalised with due consideration of pre-application consultation to date (see **Chapter 7: Consultation**) and the ES will accompany the application to North Devon District Council (NDDC) for planning permission under the Town and Country Planning Act 1990.

3. The components of the White Cross Offshore Windfarm Project seaward of Mean High Water Springs (MHWS) ('the Offshore Project') are subject to a separate application for consent under Section 36 of the Electricity Act 1989, and for Marine Licences under the Marine and Coastal Access Act 2009. These applications are supported by a separate ES covering all potential impacts seaward of MHWS.

4. This assessment has been undertaken with specific reference to the relevant policy, legislation and guidance, which are summarised in **Section 21.2** of this chapter. Further information on the international, national and local planning policy and legislation relevant to the Onshore Project is provided in **Chapter 3: Policy and Legislative Context**.

5. Details of the methodology used for the Environmental Impact Assessment (EIA) and Cumulative Effect Assessment (CEA), are presented in **Section 21.3** and **21.8** of this chapter and **Chapter 6: EIA Methodology**.

6. This assessment has been informed by impacts assessed in Land Use, Noise and Vibration, Traffic and Transport, and Landscape and Visual Amenity. Impacts assessed in this chapter informs the following linked ES chapters:

   - Human health.

7. Inter-relationships with these chapters is further described in **Section 21.10**.

8. Additional information to support the Socio-economic, tourism and recreation assessment includes an Economic Impact Assessment undertaken for the Onshore Project, as presented in **Appendix 21.A: Economic Impact Assessment**.

9. This ES chapter:

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

21.2 Policy, Legislation and Guidance

10. **Chapter 3: Policy and Legislative Context** describes the wider policy and legislative context for the Onshore Project. The principal policy and legislation used to inform the assessment of potential impacts on socio-economics, tourism and recreation for the Onshore Project are outlined in this section.

21.2.1 Local Plan Policies

11. This section considers local policies and their relevance to the socio-economics, tourism and recreation assessment. A summary of the local policies and economic development strategies is provided in **Table 21.1**.

Table 21.1 Summary of Local Policies relevant to socio-economics, tourism and recreation

Policy Name	Summary	How and where this is considered in the ES
North Devon District and Torridge District Council Joint Local Plan (2018)		
Policy ST09: Coast and Estuary Strategy	(1) The sustainability of coastal communities will be maintained and enhanced with regard to their distinctive cultural heritage, diverse maritime economy, landscape setting and regeneration opportunities. The separate identity of these settlements will be maintained and enhanced. (2) Priority will be given to employment uses and waterside infrastructure requiring a coastal location. Such uses will be directed to previously developed sites around the coastline and the Taw-Torridge	Potential impacts on employment (**Section 21.5**, **Section 21.6**, **Section 21.7**, **Section 21.8**, and **Section 21.9**) are considered in this ES. Reference to South West Coast Path and Tarka Trail is made in **Section 21.4**).

Policy Name	Summary	How and where this is considered in the ES
	estuary with existing jetties and wharves. These sites should be safeguarded for employment uses requiring a waterside location. Facilities at Appledore and Yelland Quay will be protected for their value as landing stages for marine aggregates and for other marine employment uses. Loss of traditional boating facilities that are part of the fabric of coastal communities will be discouraged. (5) The integrity of the coast and estuary as an important wildlife corridor will be protected and enhanced. The importance of the undeveloped coastal, estuarine and marine environments, including the North Devon Coast Areas of Outstanding Natural Beauty, will be recognised through supporting designations, plans and policies. The undeveloped character of the Heritage Coasts will be protected. (7) Development within the Undeveloped Coast and estuary will be supported where it does not detract from the unspoilt character, appearance, and tranquillity of the area, nor the undeveloped character of the Heritage Coasts, and it is required because it cannot reasonably be located outside the Undeveloped Coast and estuary. (10) Delivery of onshore facilities for operational servicing of offshore renewable energy proposals will be facilitated in existing ports and at existing jetties and wharves where they: (a) do not harm identified environmental and heritage assets; and (b) do not prejudice the current operational effectiveness of the port.	

Policy Name	Summary	How and where this is considered in the ES
	(11) The continuity of the South West Coast Path and the Tarka Trail will be protected and a network of connecting routes will be improved. Improvements to coastal and estuarine access will be sought where rundown waterfront areas are regenerated. The Tarka Trail link between Ilfracombe and Braunton will be completed.	
Policy ST11: Delivering Employment and Economic Development	Employment growth will be supported to deliver quantitative and qualitative improvements in job opportunities throughout northern Devon; the achievement of which will be supported on the following basis: (1) Employment generating opportunities to meet identified needs and locally determined growth aspirations. (3) The District Councils, working in partnership with business and local communities, will maintain and enhance a diverse local economy and encourage opportunities for inward investment. The high environmental qualities of northern Devon will be safeguarded to attract further investment from new and existing employers and links between the environment and the economy will be fostered. (4) Opportunities for new business formations will be actively pursued and the long-term survival of businesses encouraged, with sustainable forms of business, including home-working, and the expansion of ICT particularly supported where this accords with other Local Plan policies. Working with partners, the Councils will encourage education and skills development in order to provide employers with access to a suitably skilled labour force.	Potential impacts on economic activity and employment are considered in **Section 21.5**, **Section 21.6**, **Section 21.7**, **Section 21.8**, and **Section 21.9**.

Policy Name	Summary	How and where this is considered in the ES
	(5) Within northern Devon, high-value jobs in business, education and research, those supporting a low carbon economy and other key growth sectors will be encouraged in sustainable locations. These jobs will retain and enhance local skills; and developers will need to demonstrate how they will work with local economic partnerships in maximising opportunities for employing local people and developing skills in northern Devon.	
Policy ST22: Community Services and Facilities	(3) Development that involves the loss of community services and facilities will not be supported unless there is compelling evidence to demonstrate: (a) the existing use is no longer commercially viable or could not be made commercially viable; or (b) there is alternative local provision that is accessible to the local community by walking or cycling; and in either case (c) the premises are no longer required to meet the needs of the local community.	Consideration of any potential disruption to social infrastructure is covered in **Section 21.5**, **Section 21.6**, and **Section 21.7**.
Braunton Parish Neighbourhood Plan 2018-2031		
Economy	The Plan aims to 'help realise the full potential of Braunton Parish in respect of providing employment, retail and hospitality for residents and visitors throughout the year'.	Consideration of local economic impacts is covered in **Section 21.5**, **Section 21.6**, and **Section 21.7**
Policy E5: Local Tourism Opportunities	The policy considers conditions for support of initiatives seeking to develop local tourism opportunities.	Consideration of impacts on the local tourism economy are covered in **Section 21.5**, **Section 21.6**, and **Section 21.7**.
Policy E6: Loss of Hospitality Facilities	The policy considers conditions to prevent the loss of tourism facilities.	Consideration of impacts on the local tourism economy are covered in **Section 21.5**, **Section 21.6**, and **Section 21.7**.

21.2.2 National Planning Policy Framework

12. The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, updated July 2021) is the primary source of national planning guidance in England. Sections relevant to this aspect of the ES are summarised below **Table 21.2**.

Table 21.2 Summary of NPPF Policy relevant to socio-economics, tourism and recreation

Summary	How and where this is considered in the ES
a) an economic objective - to help build a strong, responsive, and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure. – NPPF, Section 2, Paragraph 8(a).	The economic contribution from the Onshore Project's Onshore Infrastructure is considered in **Section 21.5**, **Section 21.6**, and **Section 21.7**.
Local planning authorities should approach decisions on proposed development in a positive and creative way. They should use the full range of planning tools available, including brownfield registers and permission in principle, and work proactively with applicants to secure developments that will improve the economic, social, and environmental conditions of the area. Decision-makers at every level should seek to approve applications for sustainable development where possible – NPPF, Section 4, Paragraph 38.	The contribution of the Onshore Project to sustainable development is discussed throughout the chapter.
The Government's commitment to creating jobs and prosperity through continued economic growth is defined within the NPPF, which sets out the importance of: • local and regional economic market business needs (paragraphs 81, 85); • setting out a clear economic vision and planning for economic development (paragraph 82); and • provision and accessibility of new jobs (paragraph 83) – NPPF, Section 6, Paragraphs 81-83, 85.	How the Onshore Project supports employment is discussed in **Sections 21.5**, **Section 21.6**, and **Section 21.7.**
To provide the social, recreational, and cultural facilities and services the community needs, planning policies and decisions should:	The interaction between the Onshore Project and existing tourism and recreation facilities is discussed in

Summary	How and where this is considered in the ES
a) plan positively for the provision and use of shared spaces, community facilities (such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments; b) take into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community; c) guard against the unnecessary loss of valued facilities and services, particularly where this would reduce the community's ability to meet its day-to-day needs; d) ensure that established shops, facilities and services are able to develop and modernise, and are retained for the benefit of the community; and e) ensure an integrated approach to considering the location of housing, economic uses and community facilities and services. – NPPF, Section 8, Paragraph 93.	**Section 21.5**, **Section 21.6**, and **Section 21.7**.

21.2.3 National Policy Statement

13. The assessment of potential impacts upon Socio-economics, tourism and recreation has been made with specific reference to the relevant National Policy Statement (NPS). NPSs are statutory documents which set out the government's policy on specific types of Nationally Significant Infrastructure Projects (NSIPs) and are published in accordance with the Planning Act 2008.

14. Although the Onshore Project is not a Nationally Significant Infrastructure Project (NSIP), it is recognised that due to its size of 100MW and its location in English waters, certain NPS are considered relevant to the Onshore Project. Therefore, to align with the approach to the assessment of the Onshore Project, certain NPS are will also be considered as part of the Onshore Project.

15. Those relevant to socio-economics, tourism and recreation are set out within the overarching NPS for Energy (EN-1), NPS for Renewable Energy Infrastructure (EN-3) and NPS for Electricity Networks Infrastructure (EN-5), which are summarised in **Table 21.3**.

16. It is noted that the NPS for Energy (EN-1), the NPS for Renewable Energy Infrastructure (EN-3) and the NPS for Electricity Networks Infrastructure (EN-5) are in the process of being revised. Draft versions were published for consultation in September 2021 (Department for Business Energy and Industrial Strategy (BEIS), (2021a), BEIS, (2021b) and BEIS (2021c) respectively). A review of these draft versions has been undertaken in the context of this ES chapter.

17. **Table 21.3** includes a section for the draft version of NPS (EN-1, EN-3 and EN-5) in which relevant additional NPS requirements not presented within the current NPS (EN-1, EN-3 and EN-5) have been included. A reference to the requirement's location within the draft NPS and to where within this ES chapter or wider ES it has been addressed has also been provided.

18. Minor wording changes within the draft version which do not materially influence the NPS (EN-1, EN-3, EN-5) requirements have not been reflected in **Table 21.3**.

Table 21.3 Summary of NPS EN-1, EN-3 and EN-5 provisions relevant to socio-economics, tourism and recreation

Summary	How and where this is considered in the ES
"Where the Onshore project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the ES" – EN-1, paragraph 5.12.2.	This chapter considers the impacts on socio-economics, tourism, and recreation from the construction of the Project's Onshore Infrastructure at local and national level.
"This assessment should consider all relevant socio-economic impacts which may include the creation of job and training opportunities" – EN-1, paragraph no. 5.12.3.	Relevant economic impacts inclusive of employment creation during construction are considered in **Section 21.5**.
"This assessment should consider all relevant socio-economic impacts which may include the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities" – EN-1, paragraph no. 5.12.3	With regards to local services and infrastructure, this chapter focuses on impacts on tourism and recreational facilities during construction and operations. These are considered in **Section 21.5** and **Section 21.6**. Impacts on the provision of other services and infrastructure have been scoped out of the assessment because of the limited scale of activities involved in the delivery of the Onshore Infrastructure.
"This assessment should consider all relevant socio-economic impacts which may include… effects on tourism" – EN-1, paragraph no. 5.12.3.	Effects on tourism and recreation are considered as part of **Sections 21.5** and **Section 21.6**.

Summary	How and where this is considered in the ES
"This assessment should consider all relevant socio-economic impacts which may include… the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure" – EN-1, paragraph no. 5.12.3.	Impacts on demographics from the influx of workers and their implications have been scoped out of the assessment as part of the Scoping Report.
"This assessment should consider all relevant socio-economic impacts which may include…cumulative effects" – EN-1, paragraph no. 5.12.3.	Cumulative effects are considered in **Section 21.8**.
"Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development's socio-economic impacts correlate with local planning policies" – EN-1, paragraph no. 5.12.4.	A baseline of existing socio-economic conditions and tourism activity is provided in **Section 21.4**.
"Socio-economic impacts may be linked to other impacts, for example the visual impacts of a development". – EN-1, paragraph no. 5.12.5.	Links with impacts covered within other chapters of the ES are considered in **Section 21.10**.
There is no specific guidance on socio-economic, tourism and recreation from offshore wind installations and their onshore infrastructure within EN-3.	N/A

21.2.4 Guidance

19. Other than the policies mentioned in previous sections, there is no legislation applicable to the assessment of potential impacts on socio-economics, tourism, and recreation. The approach followed in this assessment draws on the following guidance documents:

- Social Impact Assessment: Guidance for assessing and managing the social impact of projects (International Association for Impact Assessment, 2015)
- Methods of Environmental and Social Impact Assessment (Natural and Built Environment Series) (Therivel and Wood, 2017)
- Measuring the Economic Impact of an Intervention or Investment (Office for National Statistics, 2010)
- Defining 'local area' for assessing impact of offshore renewables and other marine developments: guidance principles (Scottish Government, 2022).

21.3 Assessment Methodology

21.3.1 Study Area

20. Details of the location of the Onshore Project and the onshore components are set out within **Chapter 5: Project Description**.

21. The socio-economics, tourism and recreation study area is defined with reference to the impacts on socio-economics, tourism and recreation from the Onshore Project's Onshore Infrastructure and any receptors that may be affected by those potential impacts.

22. The choice of the study areas considered in the assessment was based on BiGGAR Economics' guidance on the definition of local areas in the context of offshore renewable projects, as drafted on behalf of Marine Scotland. The process provides a set of principles that can be applied to projects across the UK.

23. The guidance identified six principles for the identification of local areas through a consultation programme and case study analysis. These can be used to define local areas based on pre-existing geographies that contain the epicentres of impact. The principles are:

    - Principle 1 (Dual Geographies) - The local area for the supply chain and investment impacts should be separate from the local area(s) for wider socio-economic impacts, including tourism and recreation
    - Principle 2 (Appropriate Impacts) - The appropriate impacts to be considered for assessments should be identified before defining the local areas
    - Principle 3 (Epicentres) - The local areas should include all the epicentres of the appropriate impacts
    - Principle 4 (Accountability) - The local areas used in the assessment should comprise of pre-existing economic or political geographies (community councils, local authorities, development agencies) to enhance accountability
    - Principle 5 (Understandable) - The local areas should be defined in such a way that they are understandable to the communities they describe
    - Principle 6 (Connected Geography) - The local area for the supply chain and investment impacts should consist of connected (including coastal) pre-existing economic or political geographies.

24. With its focus on the identification of epicentres of impact, the principles included in the guidance are also applicable to the definition of study areas for the assessment of impacts from the Onshore Infrastructure.

25. For the purposes of the assessment of impacts associated with the Onshore Project's Onshore Infrastructure the following three study areas have been identified: Torridge; North Devon; and the UK.

26. As Torridge and North Devon are proximate economies, a Local Area has been defined as comprising the two local authority areas. This means that the assessment of impacts is carried out with respects to:

    - the Local Area (North Devon and Torridge)
    - the UK.

27. Economic impacts (expenditure and employment) are considered with reference to the Local Area and the UK economy.

28. Impacts on tourism and recreation have been considered only with reference to the Local Area.

29. The study areas considered as part of the assessment are set out in **Figure 21.1**.

Figure 21.1 Socio-economics, tourism and recreation study area

21.3.2 Approach to Assessment

30. **Chapter 6: EIA Methodology** provides a summary of the general impact assessment methodology applied to the Onshore Project. The following sections outline the methodology used to assess the potential effects on socio-economics, tourism and recreation.

21.3.2.1 Definitions of Magnitude of Impact

31. For each of the impacts assessed in this Environmental Statement, a magnitude has been assigned. In doing so the spatial extent, duration, frequency and reversibility of the impact from the construction, operation and maintenance and decommissioning phase of the Onshore Project have been considered, where applicable. The magnitude of an effect is determined by assessing the following considerations:

- Scale or spatial extent - the geographical area over which an impact occurs and the impact's size
- Duration - the duration over which the impact occurs
- Frequency of occurrence - how often the impact occurs
- Nature of change relative to the baseline - the degree of change relative to the baseline level.

32. The socio-economic, tourism and recreation impacts are considered over distinct study areas to capture the spatial extent of any impact. The magnitude and significance of any impact are then considered in relation to the baseline conditions within those study areas.

33. The frequency and temporal extent of any impact will be considered and those which occur over a short period of time will be described as temporary and those which occur over a longer period of time will be described as permanent.

34. The approach to determining the severity, and therefore magnitude, of any socio-economic impacts is outlined in this section for socio-economic and tourism impacts, including:

- Changes in economic activity
- Tourism and recreation assets.

21.3.2.1.1 Magnitude of General Economic Impacts

35. Between 2000 and 2019, the average level of Gross Domestic Product (GDP) per capita growth in the UK was 1% per annum (IMF, 2022). Similarly, between 2000

and 2019 the number of jobs has grown by 1% per annum (ONS, 2022). The magnitude of any change in an economy should be considered within this context.

36. The magnitude of employment impacts should be considered in relation to the levels of economic activity within a study area. The magnitude should be relative to the number of people in employment, rather than the unemployed. The geographic split of impact analysis should consider workplaces (jobs) rather than residents (employment rate) to be consistent with the approach followed in distributing contracts between study areas, which is based on the locations of the companies.

Table 21.4 Definitions of magnitude for economic impacts

Sensitivity	Definition
High	An effect would be considered to have a high magnitude if it was equivalent to all the typical economic growth per capita. Specifically, for each study area: • Peak annual Gross Value Added (GVA) impact is greater than, equal to, 1% of the economy • Peak employment supported is greater than, or equal to, 1% of the total number of jobs.
Medium	An effect would be considered to have a medium magnitude if it was equivalent to half of the typical economic growth per capita. Specifically, for each study area: • Peak annual GVA impact is greater than, equal to, 0.5% of the economy • Peak employment supported is greater than, or equal to, 0.5% of the total number of jobs.
Low	An effect would be considered to have a low magnitude if it was equivalent to a quarter of the typical economic growth per capita. Specifically, for each study area: • Peak annual GVA impact is greater than, equal to, 0.25% of the economy • Peak employment supported is greater than, or equal to, 0.25% of the total number of jobs.
Negligible	An effect would be considered to have a negligible magnitude if it was equivalent to less than a quarter of the typical economic growth per capita. Specifically, for each study area: • Peak annual GVA impact is less than 0.25% of the economy • Peak employment supported is less than 0.25% of the total number of jobs.
No Impact	An effect would be considered to have no impact on magnitude, if no economic activity was to occur within the study area considered.

21.3.2.1.2 Magnitude of Sector Specific Economic Impacts

37. In addition to the change in the overall impact on the Gross Value Added (GVA) or employment of an area, consideration should also be given to the sectors of the economy which are expected 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 these sectors. Similarly, sectors may contribute to the sensitivity of an area's economy because of their relationship to the Onshore Project that is being developed. For example, the construction sector is likely to contribute to the area's economic sensitivity with regards to the delivery of the Onshore Project's Infrastructure.

38. The definitions of the magnitude of impacts within sectors are provided in **Table 21.5**.

Table 21.5 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 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, equal to, 1% of the GVA output of the sector • Peak employment supported by the sector is greater than, or equal to, 1% of the total number of jobs in that sector.
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 • 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, equal to, 0.25% of the sector • 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:

Magnitude	Sector Specific (including Tourism)
	• Peak annual GVA impact within that sector is less than 0.25% of the sector • Peak employment supported by the sector is less than 0.25% of the total number of jobs in that sector.

21.3.2.1.3 Magnitude of Tourism and Recreation Impacts

39. Impacts will occur on tourism and recreation receptors if they are sensitive to changes in environmental factors that will occur because of the Onshore Project's Infrastructure and the receptors are considered to experience a significant impact as a result of changes to these environmental factors.

40. 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.

41. The definitions of the magnitude of impacts on tourism and recreation assets are provided in **Table 21.6**.

Table 21.6 Definitions of magnitude of tourism and recreation impacts

Magnitude	Sector Specific (Tourism and Recreation)
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.
Medium	The effect on a tourism and recreation asset would be considered to have a medium magnitude if it 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 it 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 it is predicted to experience an undetectable change of behaviour of visitors or users.

42. Where the assessment identifies that there is no loss or alteration of characteristics, features or components, or no observable impact in either direction upon a given receptor or group of receptors from an Impact, for example due to implication of embedded mitigation or through an assessment of the potential pathway, then the assessment for that Impact upon those receptor(s) will be **No Change**.

43. Impacts assessed as **No Change** have no potential for a significance of effect and therefore are not assessed further.

21.3.2.2 Definitions of Receptor Sensitivity/Value

44. The sensitivity of the receptor is determined by assessing the following 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
- Value and importance - a measure of the receptor's importance in terms of its relative ecological, social, or economic value or status.

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

- Economies
- Sectors
- Tourism and recreation assets.

21.3.2.2.1 Sensitivity of Economies

46. The sensitivity of the economy is linked to how well it can absorb change. To consider the sensitivity of the economy, or a sector within the economy, it is necessary to consider both the resilience and agility of the economy. There are several factors that contribute to an assessment of resilience and agility, including:

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

47. The **scale of an economy** is a particularly important aspect when considering 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.

48. 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.

49. 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.

50. The **level of skills 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.

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

Table 21.7 Definitions of sensitivity for a socio-economics receptor

Sensitivity	Definition
High	A highly 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 • The share of people with no qualifications is significantly above the average for the wider economy.
Medium	A medium 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 what 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 • The share of people with no qualifications is above the average for the wider economy.
Low	A low sensitive economy tolerates changes without fundamentally altering its present character or value. Factors that would contribute to an economy being considered of low sensitivity include: • Most sectors in the economy are well represented • The number of jobs in the economy has grown in line with the wider economy • The level of educational attainment is in line with the wider economy.

Sensitivity	Definition
Negligible	An economy with negligible sensitivity is very agile and will be able to accommodate changes without affecting its present character or value. Factors that would contribute to an economy having negligible sensitivity include: • There is balance between sectors • The number of jobs in the economy has grown at a quicker rate than the wider UK economy • The share of people with no qualifications is below the average for the wider economy.

21.3.2.2.2 Sensitivity of the Tourism Economy

52. The effect on the tourism economy is scoped into this assessment.

53. The assessment will consider the effect of the Onshore Project on the tourism economy. This will require consideration 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.

54. The assessment of sensitivity will also consider the nature of the effect and the key drivers of the tourism economy in each study area. As discussed in **Table 21.8** 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.

55. 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
- The types of visitors that are attracted to the area.

Table 21.8 Definitions of sensitivity for the tourism sector

Sensitivity	Definition
High	A highly sensitive tourism sector 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 tourism sector is particularly reliant on one single attraction or market that is sensitive to the environmental effect • The number of jobs in the tourism sector economy has been declining over multiple years.
Medium	A medium sensitive tourism sector has a moderate capacity to 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 which are sensitive to the environmental effect • The number of jobs in the tourism sector economy has grown at a slower rate than the wider tourism sector.
Low	A low sensitive tourism sector tolerates 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 • The number of jobs in the tourism sector economy has grown at a similar rate to the wider tourism sector.
Negligible	A tourism sector with negligible sensitivity is very agile and will be able to accommodate changes without affecting its present character or value. Factors that would contribute to the tourism sector's 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.

56. This assessment will consider how the tourism sector contributes to the wider economy of each study area and if it is a contributing factor to the sensitivity of the economy. This will consider factors including:

    - The contribution of the tourism sector to the local economy, including:

        - Tourism employment as a proportion of total employment
        - 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. This will consider:
    - The number of visitors to the area relative to the number of visitors to the wider area
    - The presence of tourism attractions/receptors considered of national or regional importance.

57. 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.

21.3.2.2.3 Sensitivity of Tourism and Recreation Assets

58. The effect on the tourism and recreation assets is scoped into this assessment.

59. 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.

Table 21.9 Definitions of sensitivity for tourism and recreation assets

Sensitivity	Definition
High	A tourism or recreational asset with a high 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 • Being unable to adapt or adjust in response to changes in visitor or user behaviour.
Medium	A tourism or recreational asset with a medium sensitivity will have a 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 medium sensitivity include: • Being influenced by a single environmental condition to attract or accommodate visitors and users • Have a limited ability to adapt or adjust in response to changes in visitor or user behaviour.
Low	A tourism or recreational asset with a low 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 low sensitivity include:

Sensitivity	Definition
	• Environmental conditions have a minor influence on the ability of the asset to attract or accommodate visitors and users • 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 • Having substantial ability to adapt or adjust the assets in response to changes in visitor or user behaviour.

21.3.2.3 Significance of effect

60. The potential significance of effect for a given impact, is a function of the sensitivity of the receptor and the magnitude of the impact (see **Chapter 6 EIA Methodology** for further details). A matrix is used (**Table 21.10**) as a framework to determine the significance of an effect. Definitions of each level of significance are provided in **Table 21.11**. Impacts and effects may be deemed as being either positive (beneficial) or negative (adverse).

61. In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

Table 21.10 Significance of an effect - resulting from each combination of receptor sensitivity and the magnitude of the impact upon it

		Negative Magnitude			Beneficial Magnitude				
		High	**Medium**	**Low**	**Negligible**	**Negligible**	**Low**	**Medium**	**High**
Sensitivity	**High**	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Minor	Minor	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

Table 21.11 Example definitions of effect significance

Magnitude	Definition
High	A significant, very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a national or population level because they contribute to achieving national objectives or could result in exceedance of statutory objectives and/or breaches of legislation.
Medium	A noticeable and significant change in receptor condition, which are likely to be important considerations at a regional level.
Low	Small change in receptor condition, which may be raised as localised issues but are unlikely to be important in the decision-making process.
Negligible	No discernible change in receptor condition.
No change	No impact, therefore, no change in receptor condition.

62. Potential effects are described, followed by a statement of whether the effect is significant in terms of the EIA regulations. Potential effects identified within the assessment as major or moderate are regarded as significant in terms of the EIA regulations. Whilst minor effects (or below) are not significant in EIA terms in their own right, it is important to distinguish these, as they may contribute to significant effects cumulatively or through interactions.

63. Following initial assessment, if the effect does not require additional mitigation (or none is possible), the residual effect will remain the same. If, however, additional mitigation is proposed, there will be an assessment of the post-mitigation residual effect.

21.3.3 Worst-Case Scenario

64. In accordance with the assessment approach to the 'Rochdale Envelope' set out in **Chapter 6: EIA Methodology**, the impact assessment for Socio-economics, tourism and recreation has been undertaken based on a realistic worst-case scenario of predicted impacts. The Project Design Envelope for the Onshore Project is detailed in **Chapter 5: Project Description**.

65. The realistic worst-case scenario (having the most impact) for each individual impact is derived from the Project Design Envelope (PDE) to ensure that all other design scenarios will have less or the same impact.

66. **Table 21.12** presents the realistic worst-case scenario components considered for the assessment of socio-economics, tourism and recreation.

Table 21.12 Definition of realistic worst-case scenario details relevant to the assessment of impacts in relation to socio-economics, tourism and recreation

Impact	Realistic worst-case scenario	Rationale
Construction		
Economic expenditure	Conservative assumptions are made with regards to the ability of businesses in the Local Area and across the UK to deliver contracts for the Onshore Project's Infrastructure. There are three options under consideration for the onshore cable. The worst-case scenario is based on Option 2 East Yelland substation to Saunton Sands, which relies on an open Cut method.	An economic impact model is used to estimate the GVA generated by the construction of the Onshore Infrastructure. The onshore cable chosen for the assessment represents the cheapest available option and, for this reason, is the one likely to deliver the smallest economic benefits.
Employment	Conservative assumptions are made with regards to the ability of businesses in the Local Area and across the UK to deliver contracts associated with the Onshore Project's Infrastructure. There are three options under consideration for the onshore cable. The worst-case scenario is based on Option 2 East Yelland substation to Saunton Sands, which relies on an open Cut method.	An economic impact model is used to estimate the temporary employment supported by the construction of the Onshore Infrastructure. The onshore cable chosen for the assessment represents the cheapest available option and, for this reason, is the one likely to result in the lowest levels of employment.
Tourism and Recreation	n/a	Impacts on tourism and recreation assets are based on significant environmental effects identified in other chapters of the ES. Therefore, the worst-case scenario for this impact will be equivalent to the worst-case scenario identified in these chapters.
Operation		
Tourism and Recreation	n/a	Impacts on tourism and recreation assets are based on significant environmental effects identified in other chapters of the ES. Therefore, the worst-case scenario for this impact will be equivalent to the worst-case

Impact	Realistic worst-case scenario	Rationale
		scenario identified in these chapters.
Decommissioning		
	The decommissioning policy for the Onshore Project infrastructure is not yet defined however it is anticipated that some infrastructure would be removed, reused or recycled; other infrastructure could be left in situ. The following infrastructure is likely be removed, reused, or recycled where practicable: • Onshore substation • Export Cables The following infrastructure is likely to be decommissioned and could be left in situ depending on available information at the time of decommissioning: • Transition joint bays • Cable joint bays Cable ducting.	The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time. Decommissioning arrangements will be detailed in a Decommissioning Plan, which will be drawn up and agreed with the relevant consenting body/stakeholder prior to decommissioning. For the purposes of the worst-case scenario, it is anticipated that the impacts will be comparable to those identified for the construction phase.

21.3.4 Summary of Mitigation

67. This section outlines the mitigation relevant to the socio-economics, tourism and recreation assessment, which has been incorporated into the design of the Onshore Project. Further information is detailed in **Chapter 5: Project Description**.

21.3.4.1 Embedded Mitigation

68. The embedded mitigation measures are those defined in the Institute of Environmental Management and Assessment (IEMA) guidance as either primary or tertiary mitigation.

69. During the design of the Onshore Project, the Applicant has considered ways to mitigate against any potential impacts on the local tourism economy. The focus of these measures was on the businesses at Saunton Sands and in the surrounding areas.

70. Embedded mitigation measures were aimed at limiting the traffic level during construction and the use of the car park. Mitigation measures affecting traffic levels

include the drafting and submission of an Outline Construction Traffic Management Plan, the commitment of delivering road works outside the summer season and a strategy for access to the Onshore Export Cable Corridor. More details are provided in **Chapter 19: Traffic and Transport.**

71. Requirements for the use of the car park have also been scaled down to avoid impacts on visitors. In addition, the timing and phasing of works was modified to reduce the extent of works during the peak season and to reinstate and hand-back for recreational use those areas affected by the Onshore Project.

72. The level of economic activity associated with the delivery of the Onshore Project's infrastructure constitutes an opportunity for delivering economic benefits across the Local Area and the UK. In addition, as the Project is a test and demonstration project, it is expected to contribute to the development of a local and national supply chain for floating offshore wind projects in the Celtic Sea. In this way, it will deliver both short-term and long-term economic benefits in the form of stronger local and regional supply chains.

73. The Applicant is committed, where possible, to maximise the share of its spending benefitting local and national businesses. More details on this commitment, and actions the Applicant will take to achieve this are described in **Appendix 21.A: Economic Impact Assessment**.

74. For effects that are determined by other environmental effects, such as tourism economy effects identified as a result of traffic and transport effects, the mitigation measures are outlined in the relevant chapter.

75. As these measures have been embedded the assessment of effects is undertaken on the basis that these forms of mitigation will definitely be delivered. Therefore, any effects that might have arisen without these forms of mitigation do not need to be identified as 'potential effects', as there should be no potential for them to arise.

21.3.5 Baseline Data Sources

21.3.5.1 Desktop Study

76. A desk study was undertaken to obtain information on socio-economics, tourism and recreation. Data were acquired within the study area through a detailed desktop review of existing studies and datasets. Agreement was reached with all consultees that the data collected, and the sources used to define the baseline characterisation for socio-economics, tourism and recreation are fit for the purpose of the EIA.

77. The sources of information presented in **Table 21.13** were consulted to inform the socio-economics, tourism and recreation assessment.

Table 21.13 Data sources used to inform the socio-economics, tourism and recreation assessment

Source	Summary
Aitchison (2004), Fullabrook Wind Farm proposal, North Devon: evidence gathering of the impact of wind farms on visitor numbers and tourist experience.	Study on the impact of windfarms on the tourism economy of North Devon.
BiGGAR Economics (2021), Wind Farms & Tourism Trends in Scotland: Evidence from 44 Wind Farms.	Study on the impact of windfarms on the tourism economy of Scotland.
BiGGAR Economics (2019), East Anglia ONE North and East Anglia TWO Offshore Wind Farms: Tourism Impact Review.	Study of the impact on tourism from two offshore windfarms near the Suffolk Coast Area.
Finstrokes (2022), Dive Map.	Information on dive sites along the shoreline.
Glasgow Caledonian University/Moffat Centre (2008), The Economic Impacts of Wind Farms on Scottish Tourism.	Study on the impact of wind farms on the tourism economy of Scotland.
Kantar (2020), Great Britain Tourism Survey (Domestic Overnight Tourism).	Information on volume and levels of spending from domestic overnight visitors.
Kantar (2019), Great Britain Day Visits Survey.	Information on volume and levels of spending from day visitors.
NFO (2003), Investigation into the potential impact of wind farms on tourism in Wales.	Study of tourism perceptions in Wales.
NISRA (2021), 2018-Based Population Projections: Principal Projection.	Information on projected population by 2043 and future demographic structure in Northern Ireland.
North Devon Council (2022), Walking.	Information on long-distance walking and cycle routes in North Devon.
Northumbria University (2014), Evaluation of the impacts of onshore wind farms on tourism.	Study of the impact of wind farms on the tourism economy of Northumberland.
ONS (2022), Regional gross domestic product: enterprise regions.	Data on the change in GVA and GVA per head by local area.
ONS (2022), Regional gross value added (balanced) per head and income components.	GVA per head in the UK.
ONS (2022), Annual Survey of Hours and Earnings - resident analysis.	Data on the median and average annual gross income of residents.

Source	Summary
ONS (2021), Population estimates - local authority based by single year of age.	Data on projected population estimates and demographic structure.
ONS (2021), Business Register and Employment Survey.	Data on the industrial structure by area and jobs growth by area.
ONS (2020), 2018-based Population Projections.	Information on projected population by 2043 and future demographic structure.
ONS (2020), International Passenger Survey.	Information on volume and levels of spending from international overnight visitors.
Regeneris and The Tourism Company (2014), Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector.	Study of the impact of windfarms on the tourism economy of Wales.
StatsWales (2021), Population Projections by year and age.	Population projections for Wales.
Surfers Against Sewage (2013), The Economic Impact of Domestic surfing on the United Kingdom.	Information on surfing activity and its economic impact.
Torridge Council (2022), Walks and Trails.	Information on long-distance walking and cycle routes in Torridge.
UK Government (2019), English Indices of Deprivation 2019.	Data collected on the indices of deprivation by small area of England.
VisitEngland (2016), 2016 Census of Serviced Accommodation Stock.	Data on the number and type of accommodation providers by area of England.

21.3.5.2 Site Specific Survey

78. The authors of this assessment are familiar with and have experience in assessing the impacts on socio-economics, tourism and recreation from the onshore infrastructure associated with offshore wind developments.

79. Given the wealth of data available to characterise the study areas included in this assessment, it was not deemed necessary and proportionate to carry out a site-specific survey.

21.3.6 Data Limitations

80. The key limitations of data used within the baseline are:

- lags in the release of publicly available statistics
- the impact of Covid-19 on tourism statistics

- reliability of statistics on visitor numbers and spending at local level.

81. Data from official statistical sources, such as the surveys carried out by the Office for National Statistics (ONS), are generally published with a lag of between one and two years. This means that part of the information included in the baseline does not reflect current economic activity, while being based on the latest available data.

82. Similarly, the economic model estimating the economic impact from the Onshore Project's Infrastructure relies on an Input-Output Methodology. One of the main data sources associated with this approach is the UK Input-Output Tables, which, while it was last published in 2022, refers to sectoral interactions as of 2018.

83. Where the latest year for which information on tourism was 2020, data from 2019 was used instead. This is because 2020 was not considered as an appropriate reference point. Over 2020 and throughout 2021, tourism activity was constrained by restrictions aimed at preventing the spread of Covid-19, which limited domestic and international travel. While the Covid-19 pandemic may have changed attitudes towards travel (for instance, shifting preferences from international to domestic holidays), international visitors are likely to remain a key group for the tourism sector.

84. The robustness of data on tourism visits and spending depends on the size of the study areas considered. Data at local authority level tend to rely on smaller sample sizes and are to be considered less accurate.

85. None of the assumptions and limitations listed above are likely to affect the overall assessment of effects from the development, construction, and operations of the Onshore Project's Infrastructure.

21.3.7 Scope

86. Upon consideration of the baseline environment, the project description outlined in **Chapter 5: Project Description**, and Scoping Opinion (Case reference: EIA/2022/00002), potential impacts upon Socio-economics, tourism and recreation have been scoped in or out. These impacts are outlined, together with a justification for why they are or are not considered further, in **Table 21.14** and **Table 21.15** respectively. In scoping potential impacts in or out reference is made to the embedded mitigation measures outlined above in **Section 21.3.4.1**.

Table 21.14 Summary of impacts scoped in relating to socio-economics, tourism and recreation

Potential Impact	Justification
Construction	
Economic expenditure	The impact from spending on the construction of the Onshore Project's Infrastructure is included in the assessment as it is likely to benefit businesses in the Local Area.
Employment	The impact from spending on the construction of the Onshore Project's Infrastructure is included in the assessment as it is likely to support temporary employment in the Local Area.
Tourism and recreation	Any potential impacts from construction activities through obstruction or disturbance to tourism and recreation assets will be minimised through micro-siting and mitigation. However, the assessment considers the impact of any disturbance from noise, visual and traffic impacts on tourism and recreation receptors.
Operations and Maintenance	
Tourism and recreation	The assessment considers the impact of any disturbance from noise, visual impacts on tourism and recreation receptors.
Cumulative Effects	
Cumulative effects	The Onshore Infrastructure will allow the construction of the Onshore Project, which being one of the earliest offshore wind developments in the Celtic Sea, could support the clustering of windfarm developments in this area. This will have implications for supply chain businesses, with opportunities to expand economic activity and support employment. Implications from other onshore projects and the onshore requirements from other offshore projects within the Area of Search are also considered.

Table 21.15 Summary of impacts scoped out relating to socio-economics, tourism and recreation

Potential Impact	Justification
Construction	
Demographic changes	Given the transient, short-term nature and small scale of construction activity, coupled with the more local study area being influenced by annual tourism movements, any potential change is expected to be negligible.
Operations and Maintenance	
Expenditure	Any operational expenditure associated with the cable route and substation, due to its limited scale, is considered negligible and has been scoped out accordingly.
Employment	Any operational employment associated with the cable route and substation will likely be limited in scale and is considered negligible. For this reason, this impact has been scoped out.
Demographic changes	Given the limited scale of works required, no migration is expected to be required in delivering and maintaining the Onshore Infrastructure.
Other	
Potential transboundary impacts	There is no potential for social or economic impacts to extend outside UK boundary, given the Onshore Infrastructure's location.

21.3.8 Consultation

87. Consultation has been a key part of the development of the Onshore Project. Consultation regarding Socio-economics, tourism and recreation has been conducted throughout the EIA. An overview of the Onshore project consultation process is presented within **Chapter 7: Consultation**.

88. A summary of the key issues raised during consultation specific to socio-economics, tourism and recreation is outlined below in **Table 21.16**, together with how these issues have been considered in the production of this ES.

Table 21.16 Consultation responses

Consultee	Date, Document, Forum	Comment	Where addressed in the ES
Scoping Opinion Response			
North Devon Council	5/04/2022, Pre-application enquiry response	Future engagement with the Applicant is sought on: -supply chain and local community benefits including the opportunity for locals to invest. -consideration of national energy and vulnerability to disruption. -consideration of the squeeze of viable fishing groups and cumulative reduction with marine conservation sites and other developments such as aquaculture.	N/A
Marine Management Organisation	Scoping Response	Agreement with approach to scoping as set out in the scoping report.	N/A
Marine Management Organisation	Scoping Response	The ES should consider the potential impacts on the Southwest Coast Path National Trail and the Tarka Trail. They should also be considered as visual receptors in the Landscape and Visual Impact Assessment (LVIA).	Reference to the Southwest Coast Path National Trail and the Tarka Trail is made in the tourism and recreation baseline (**Section 21.4.1.2**).
Marine Management Organisation	Scoping Response	The ES should consider potential impacts on access land, common land, public rights of way and, where appropriate, the England Coast Path and coastal access routes and coastal margin in the vicinity	These potential impacts are considered with reference to the Land Use chapter in **Section 21.5.3.** Details on how crossings will be managed and on

Consultee	Date, Document, Forum	Comment	Where addressed in the ES
		of the development, in line with NPPF paragraph 100. It should assess the scope to mitigate for any adverse impacts. Rights of Way Improvement Plans (ROWIP) can be used to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.	mitigation measures during construction are provided in **Appendix 15.A Outline Public Rights of Way Strategy**.
North Devon Surfing Reserve	31/10/2022, Consultation	"Specifically refer to the importance of ocean water activities, that rely on a functioning surf ecosystem, to the local and visiting communities' health, wellbeing and economy". Reference should be made to the historic and present Surfonomic study currently carried out by Dr Gregory Borne from Plymouth Marjon University in the assessment.	Reference to the importance of surfing activity is made in **Section 21.4.1.2.5.** This includes a wave modelling report that was produced as part of the application for the Offshore Project. The assessment also considers any impacts linked to access to Saunton Sands.

21.4 Existing Environment

89. This section describes the existing environment in relation to socio-economics, tourism and recreation associated with the White Cross study area. It has been informed by a review of the sources listed in **Table 21.13.**

21.4.1 Current Baseline

21.4.1.1 Socio-Economic Baseline

21.4.1.1.1 Population

90. In 2020, North Devon had a total population of 98,200 and Torridge had a population of 68,700 (Office for National Statistics (ONS) 2021). In North Devon 57% of the population were aged between 16 and 64 years old, whereas in Torridge

this group accounted for 56% of the population. The share of the working age population living in the Local Area was smaller than for the UK (62%).

91. In North Devon, people aged 65 and over accounted for 26% of the population, just below the share accounted for by this group in Torridge (28%). Both local areas had a larger share of their population aged 65+ compared to the UK, where this group accounted for 19% of the total population.

92. The Local Area had a total population of 166,900. The Local Area had a smaller share of its population of working-age (57%) and a larger share aged 65+ (27%) compared to the UK.

93. The relatively larger share accounted for by people aged 65+ across North Devon and Torridge suggests demands on public services, especially health, may be more marked within the Local Area than across the UK.

Table 21.17 Population estimates

	North Devon	Torridge	Local Area	UK
Total Population	98,200	68,700	166,900	67,081,200
% aged under 16	17%	16%	17%	19%
% aged 16-64	57%	56%	57%	62%
% aged 65 and over	26%	28%	27%	19%

21.4.1.1.2 Population Projections

94. The ONS also produces population projections based on recent trends in demographics, migration, fertility and mortality. Between 2018 and 2043, the population of North Devon is projected to increase from 96,110 to 110,678 equivalent to an increase of 15.2% (ONS 2021). Similarly, the population of Torridge is projected to increase by 15.8%, from 68,143 to 78,900. The population of the Local Area is therefore projected to increase by 35,000 people, going from 164,253 in 2018 to 189,579 in 2043.

95. The expected increase in population in the Local Area is above average compared to the UK, where the population is projected to increase by 9.2%, from 66,435,550 to 72,563,425 (Northern Ireland Statistics and Research Agency (NISRA) 2021) (StatsWales 2021) (National Records of Scotland (NRS) 2020).

96. The proportion of North Devon residents aged 16-64 years old is projected to decrease over time, with the share of working age population falling from 58% to

52% in 2043. The share of the population of working age is also projected to fall in Torridge, from 53% to 47%. The relative fall in the share of the working age population is projected to be more marked in the Local Area (a fall from 56% to 50%) than across the UK, where this group will go from 63% of the population to 59% in 2043. Although the share of the population of working age will decrease, the total number of working age people is projected to increase by over 3,300.

97. Over the same period, the share of the population of North Devon accounted for by people aged 65+ is projected to increase from 25% to 33%. Similarly, in Torridge the share of the population accounted for by this group is projected to increase from 27% to 36%. Within the Local Area, the population aged 65+ will comprise 34% of the total population by 2043. The share of the population aged 65+ will be larger than across the UK, where people aged 65+ are projected to account for 24% of the UK's total population by 2043, up from 18% in 2018.

98. The ageing population of the Local Area and the UK is likely to result in increased pressure on public services. The creation of a high productivity economy will be key to offset these trends and will be enabled by the offshore wind activity supported through the construction of the Onshore Infrastructure.

Table 21.18 Population projections, 2018-2043

Parameter	North Devon		Torridge		Local Area		UK	
	2018	2043	2018	2043	2018	2043	2018	2043
Total Population	96,110	110,678	68,143	78,900	164,253	189,579	66,435,550	72,563,425
% aged under 16	17%	15%	20%	18%	18%	16%	19%	17%
% aged 16-64	58%	52%	53%	47%	56%	50%	63%	59%
% aged 65 and over	25%	33%	27%	36%	26%	34%	18%	24%

21.4.1.1.3 Industrial Structure

99. The relative distribution of employment by sector in each of the study areas gives an indication of its relative reliance on any single type of activity. It also provides evidence on a study area's potential for attracting economic activity associated with the construction of the Onshore Infrastructure associated with the Onshore Project.

100. The sectors relevant to the assessment of the tourism economy and any impacts on tourism and recreation assets include:

- Accommodation and food services activities

- Arts, entertainment and recreation
- Wholesale and retail trade.

101. In both North Devon and Torridge, a larger share of the workforce was employed in accommodation and food service activities and the wholesale and retail trade sectors than across the UK (ONS 2021). The wholesale and retail trade employed the largest number of people in North Devon (16.9%), higher than both Torridge (15.4%) and the UK (14.7%). Accommodation and food service activities employed 12.7% and 11.0% of the workforce in North Devon and Torridge respectively, compared to 7.1% across the UK. Employment in arts, entertainment, and recreation in North Devon (1.3%) was lower than the UK average (2.3%). In Torridge, the share of employment accounted for by this sector (2.6%) was slightly higher than across the UK.

102. Overall, these three sectors accounted for 30.2% of employment across the Local Area as opposed to 24.1% across the UK as a whole. This suggests tourism-related employment is relatively more important across the Local Area than the UK.

103. Construction and manufacturing are the sectors which may benefit from the economic opportunities associated with the construction of the Onshore Infrastructure associated with the Onshore Project.

104. In Torridge the share of the workforce accounted for by construction was larger than average, accounting for 7.7% of the workforce in the area compared to 4.8% in North Devon and 4.9% across the UK. The majority of the civil engineering employment in the Local Area is within Torridge.

105. The share of employment in the manufacturing sector across North Devon (12.7%) was larger than that of Torridge (7.7%) and the UK (7.7%). The largest component of the manufacturing sector in North Devon is the manufacture of pharmaceutical products.

Table 21.19 Industrial structure

Parameter	North Devon	Torridge	Local Area	UK
Wholesale and retail trade	16.9%	15.4%	16.4%	14.7%
Human health and social work activities	14.8%	8.8%	12.9%	13.2%
Manufacturing	12.7%	7.7%	11.1%	7.7%
Accommodation and food service activities	12.7%	11.0%	12.1%	7.1%
Agriculture, forestry and fishing	7.9%	16.5%	10.7%	1.6%

Parameter	North Devon	Torridge	Local Area	UK
Education	7.9%	9.4%	8.4%	8.6%
Administrative and support service activities	5.8%	5.0%	5.5%	8.6%
Professional, scientific and technical activities	5.3%	5.0%	5.2%	8.8%
Construction	4.8%	7.7%	5.7%	4.9%
Transportation and storage	2.1%	4.0%	2.7%	5.0%
Public administration and defence; compulsory social security	2.1%	1.5%	1.9%	4.4%
Real estate activities	1.8%	2.0%	1.9%	1.9%
Information and communication	1.5%	1.1%	1.4%	4.3%
Arts, entertainment and recreation	1.3%	2.6%	1.7%	2.3%
Other service activities	1.3%	1.2%	1.2%	2.0%
Water supply; sewerage, waste management and remediation activities	0.5%	0.5%	0.5%	0.7%
Financial and insurance activities	0.5%	0.4%	0.4%	3.4%
Electricity, gas, steam and air conditioning supply	0.2%	0.1%	0.2%	0.4%
Mining and quarrying	0.0%	0.1%	0.0%	0.2%
Total Employment	47,330	22,675	70,005	30,547,000

21.4.1.1.4 Economic Activity

106. Between April 2021 and March 2022, the economic activity rate (a measure of those who are either in work or looking for work) in North Devon was 86.0%, 6.5 percentage points larger than in Torridge (79.5%) (ONS 2022). The Local Area (83.2%) had a higher economic activity rate than across the UK economy (78.3%).

107. Between 2021 and 2022, North Devon and Torridge had unemployment rates of 2.4% and 2.5% respectively, which were lower than the unemployment rate in the UK (4.2%).

108. In 2021, the median annual gross salary of North Devon residents was £26,106, slightly lower than that of people living in Torridge (£26,537). The median annual gross income of residents in the Local Area was over 16% smaller than that of UK residents (£31,285).

109. Between 2010 and 2020, the number of jobs in North Devon grew by 4%, while the number of jobs in Torridge fell by 2%. Jobs growth across the Local Area (2%) was lower than across the UK, where the number of jobs increased by 11% between 2010 and 2020.

110. Lower job growth in the Local Area may be linked to the lower gross incomes offered compared to other areas of the UK. This would suggest a lack of high paid employment, with implications on the attractiveness of Torridge and North Devon's labour markets (**Table 21.20**).

Table 21.20 Economic activity, 2021/22

	North Devon	Torridge	Local Area	UK
Economic Activity Rate	86.0%	79.5%	83.2%	78.3%
Unemployment Rate	2.4%	2.5%	n/a	4.2%
Median Annual Gross Income (residents)	£26,106	£26,537	£26,246	£31,285
Jobs Growth (2010 – 2020)	4%	-2%	2%	10%

21.4.1.1.5 Qualifications

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

112. In North Devon, 36.3% of people aged 16 to 64 have achieved at least an NVQ4 qualification, equivalent to a higher education certificate (ONS, 2022). This is higher than the equivalent share in Torridge of 21.9%, but lower than the share of people with a higher education certificate across the UK (43.5%). A similar pattern applies to those holding at least NVQ3+ qualifications.

113. In North Devon, 93.4% of people aged 16 to 64 have achieved at least an NVQ1 qualification, a larger share than for Torridge (87.3%) and the UK (87.4%) (ONS 2022). The share of the working age population without qualifications in North Devon (3.6%) is smaller than across both Torridge (8.3%) and the UK (6.8%).

114. Overall, the Local Area lags the UK with respects to educational qualifications exceeding NVQ3+. This suggests a lower level of skills compared to the UK (**Table 21.21**).

Table 21.21 Qualifications, 2021

	North Devon	Torridge	Local Area	UK
% with no qualifications	3.6%	8.3%	5.6%	6.8%
% NVQ1+	93.3%	87.5%	90.8%	87.4%
% NVQ2+	78.1%	75.8%	77.1%	78.1%
% NVQ3+	58.4%	50.5%	55.0%	61.4%
% NVQ4+	36.3%	21.9%	30.1%	43.5%

21.4.1.1.6 Gross Value Added (GVA)

115. The ONS provides GVA estimates for the local areas which comprise Local Enterprise Partnerships (ONS 2022). The latest publication estimated that in 2020, North Devon generated £2.2 billion GVA, 22% higher than in 2010 when the economy of North Devon generated £1.8 billion GVA. Over the same period, the GVA generated by Torridge has increased by 16%, from £0.8 billion in 2010 to £0.9 billion in 2020. The economy of the Local Area has grown more slowly than the UK economy (+19% GVA growth), for which GVA increased by 34% between 2010 and 2020, from £1,452.6 billion to £1,949.6 billion (**Table 21.22**).

Table 21.22 Gross Value Added (Balanced) at current prices (£ billion)

Year	North Devon	Torridge	Local Area	UK
2010	1.8	0.8	2.6	1,452.6
2020	2.2	0.9	3.1	1,949.6
Change (2010-2020)	22%	16%	19%	34%

21.4.1.1.7 GVA per Head

116. The GVA per head of population supported by North Devon in 2020 was £22,298, around 40% larger than in Torridge, where GVA per head was £13,417. The GVA per head of the Local Area was £18,641, or 36% smaller than that of the UK, £29,063 GVA per head of population (ONS 2022; **Table 21.23**).

Table 21.23 GVA per head

Parameter	North Devon	Torridge	Local Area	UK
GVA per Head (£)	22,298	13,417	18,641	29,063

21.4.1.1.8 Deprivation

117. The English Indices of Deprivation is a relative measure of deprivation which ranks small areas of England across seven dimensions: income, employment, education, health, crime, housing, and the environment. These areas can be ranked based on which quintile (fifth of the distribution) they belong to, with a small area in the first quintile being in the 20% most deprived areas of England.

118. There are 58 small areas in North Devon, of which 12% are in the 20% most deprived areas in England and 9% are in the 20% least deprived areas (UK Government 2019). Small areas in North Devon are largely concentrated in the second, third and fourth quintile, with the largest share accounted for by the second quintile, slightly above average levels of deprivation.

119. Torridge also has slightly above average levels of deprivation compared to England as a whole. There are 37 small areas in Torridge, of which 5% are in the 20% most deprived areas of England and none are in the 20% least deprived. Similarly to North Devon, the second quintile accounts for the highest share of Torridge areas, with 57% of small areas in the local authority in the second quintile (i.e., the most deprived 40% of areas across England).

120. Levels of deprivation in the Local Area remain higher than average. 50% of the study areas fall within the least deprived 40% areas of England. Similarly, 5% of areas within the Local Area belong to the 20% most affluent areas of England (**Table 21.24**).

Table 21.24 Indices of deprivation, 2019

Index	North Devon	Torridge	Local Area
1 (most deprived quintile)	12%	5%	9%
2	31%	57%	41%
3	26%	24%	25%
4	22%	14%	19%
5 (least deprived quintile)	9%	0%	5%

21.4.1.1.9 Summary of Socio-Economic Baseline

121. The economies of North Devon and Torridge are well balanced but have not performed as well as the wider UK economy in recent years. The level of employment growth was lower in the Local Area, and the share of working age people is projected to decrease over the coming decades. The levels of higher education qualifications and median pay were lower in the Local Area compared to the UK.

122. The Local Area has strengths in sectors relevant to the construction of the Onshore Infrastructure associated with the Onshore Project, including manufacturing which is well represented in North Devon, and construction, which accounts for an above average share of employment in Torridge. The tourism sector is also a relatively more important employer within the Local Area than across the UK.

21.4.1.2 Tourism Baseline

21.4.1.2.1 Tourism Economy

123. A range of statistics are available on visitor numbers and visitor spend, including from the Great Britain Day Visitor Survey (GBDVS), the Great Britain Tourism Survey (GBTS) and the International Passenger Survey. Data on international visitors were not available at the geographic level of North Devon and Torridge. As a result, reference is made to Devon as a whole.

124. In 2019, there were 4.7 million visitors to North Devon, with tourism spending amounting to £282.8 million. Day visitors accounted for 84% of visitors to North Devon and domestic overnight visitors accounted for 16% of visitors. Domestic overnight visitors spent the most in North Devon (£189.7 million), which amounts to £244 per visit. Day visitors spent a total of £93.1 million, which is equivalent to £24 per visit. International visitors to Devon spent on average £449 per visit.

125. In 2019, there were 2.0 million visitors to Torridge, with tourist spending amounting to £118.8 million. Day visitors accounted for 85% of visitors to Torridge and domestic overnight visitors accounted for 15% of visitors. Domestic overnight visitors spent the most in Torridge (£61.3 million), which amounts to £200 per visit. Day visitors spent a total of £57.4 million, which is equivalent to £34 per visit. International visitors to Devon spent on average £449 per visit.

126. In 2019, the Local Area attracted a total 6.7 million domestic visitors, including 5.6 million day visitors and 1.1 million domestic overnight visitors. Individual spending varied by visitor type, with overnight visitors spending more money in the local economy (£228 per visit), compared to day visitors (£26 per visit).

127. In 2021, there were a total 1.8 billion visits made to the UK, with tourists spending £119.3 billion. The spend per visit of tourists to the UK was highest amongst international overnight visitors, who spend an average £644 per visit, compared to £197 per visit spent by domestic overnight tourists, and £41 per visit spent by day visitors (**Table 21.25**).

Table 21.25 Visitors and tourism spending, 2019

Parameter	North Devon	Torridge	Local Area	UK
Visits (million)				
Day Visitors	3.9	1.7	5.6	1,653
Domestic Overnight Visitors	0.8	0.3	1.1	124
International Overnight Visitors	0.4*	0.4*	0.4*	43
Total Visitors	4.7**	2.0**	6.7**	1,820
Spend (£ million)				
Day Visitors	93.1	57.4	150.5	66,978
Domestic Overnight Visitors	189.7	61.3	251.0	24,368
International Overnight Visitors	192.3*	192.3*	192.3	27,920
Total Visitors	282.8**	118.8**	401.6	119,265

*Data only available for Devon as a whole. **Excludes international visitors.

21.4.1.2.2 Employment

128. The tourism sector has grown faster within the Local Area than across the wider UK economy. Between 2015 and 2021, the level of employment in the accommodation and food services sector grew by 40% and 71% in North Devon and Torridge, respectively (ONS 2021). Employment in tourism across the Local Area grew from 6,750 to 10,000, a 48% increase, at a time when employment in the sector grew by 9% across the UK (**Table 21.26**).

Table 21.26 Tourism employment growth

Parameter	North Devon	Torridge	Local Area	UK
2015 Employment	5,000	1,750	6,750	2,152,000
2021 Employment	7,000	3,000	10,000	2,339,000
Jobs Growth (2015-2021)	40%	71%	48%	9%

21.4.1.2.3 Geographic Distribution of Tourism Activity

129. Employment in the tourism sector (defined as comprising jobs in accommodation and food service activities and arts, entertainment, and recreation) across the Local Area is mostly concentrated along the coast. Around 49% of jobs (5,390) in the sector are supported along the North Devon Coast (between Lynton and Crow Point) and in Torridge around the Hartland Devon Heritage Coast (**Figure 21.2**).

130. Most of the employment supported across the tourism sector is associated with activity in accommodation and food services, rather than reflecting activity at specific tourism attractions.

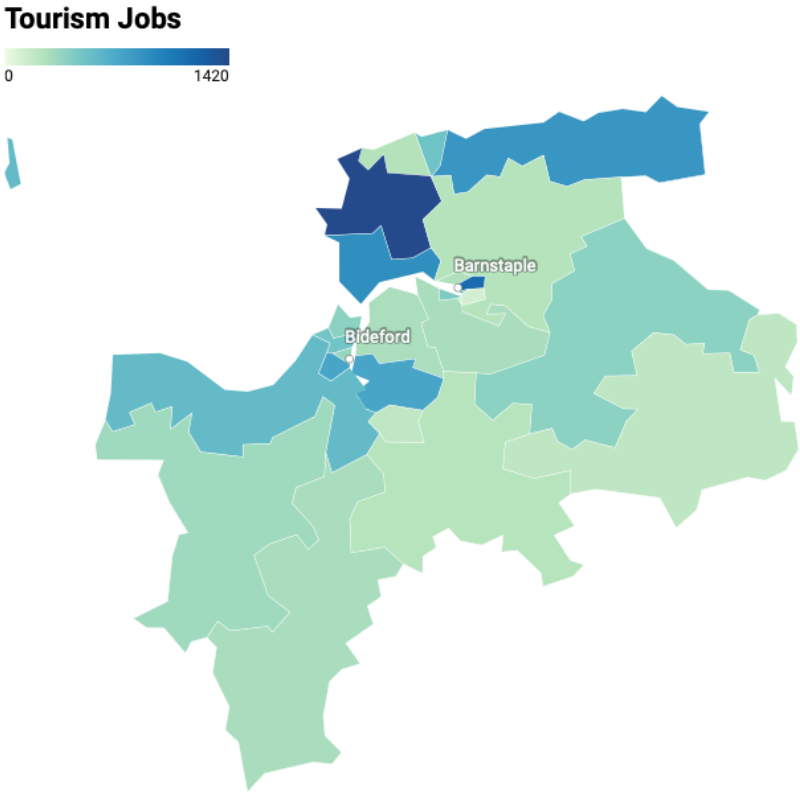


Figure 21.2 Distribution of employment in accommodation and food service activities, and arts, entertainment, and recreation

Source: ONS (2022), Business Register and Employment Survey – Super Output Areas, Mid-layer.

21.4.1.2.4 Tourist Attractions

131. A total 25 major attractions were identified in the Local Area. They are listed and described in **Table 21.27**. Among these attractions, four were identified as lying within the Onshore Development Area.

Table 21.27: Local Area, top visitor attractions

Attraction	Description	In the Onshore Development Area?
Appledore and Northam Burrows	Interesting and scenic coast walk from Westward Ho! to Appledore.	No
Baggy Point (National Trust)	Headland at Croyde with crashing waves and dramatic cliffs.	No
Bideford Pannier Market	Victorian Market building hosting 30+ shops and studios as well as markets on Tuesdays and Saturdays.	No
Braunton Burrows	Braunton Burrows, is one of the largest sand dune systems in the British Isles. At the heart of the North Devon Area of Outstanding Natural Beauty (AONB), it is a UNESCO designated Biosphere reserve.	Yes
Burton Art Gallery (Bideford)	The Burton at Bideford is an art gallery and museum.	No
Church of St Margaret of Antioch (Bideford)	Anglican Parish Church which has been a Grade I listed building since 1951.	No
Church of St Mary (Bideford)	Parish Church which offers services, baptisms, weddings, and funerals.	No
Croyde Sands	Croyde Bay is a sandy beach backed by sand dunes and situated in a small bay on the North Devon Coast.	No
Hockings Dairy Ice Creams (Bideford)	Ice cream vans which are out daily from March to October in Appledore, Bideford, Barnstaple, Ilfracombe, Instow, Torrington and Westward Ho.	No
Kipling Tors (National Trust)	Walking route next to the sea with views across Bideford Bay and inland to Exmoor. Rudyard Kipling's novel, Stalky & Co, is based on his school days here.	No
Lundy Island	Lundy is an island 18km off the coast of Devon. It contains 23 holiday properties and is managed by the Landmark Trust and is popular with bird watchers, walkers and rock climbers.	No
North Devon Maritime Museum (Bideford)	Maritime history museum in Bideford with several maritime themed exhibits.	No
Northam Burrows Country Park	Northam Burrows Country Park is a beautiful expanse of common land popular with visitors throughout the year and is a popular walking destination.	No

Attraction	Description	In the Onshore Development Area?
Putsborough Sands	Putsborough Sands is a large sandy beach that forms the southern section of Woolacombe Sands, which is popular with surfers.	No
Royal North Devon Cricket Club (Instow)	North Devon Cricket Club was founded in 1823 and moved to its current ground at Instow in 1836, with cricket being played every year.	No
RSPB Isley Marsh	Isley Marsh is made up of saltmarsh and intertidal mudflats on the southern edge of the Taw Torridge estuary.	No
Saunton Golf Club	Based on the coast of North Devon and listed as one of the Best Golf Courses in the UK.	Yes
Saunton Sands	Saunton Sands is a beach near the English village of Saunton on the North Devon coast near Braunton, popular for longboard surfing.	Yes
Sea Green of Appledore	Based on recycling, Sea Green is a small workshop/gallery in the heart of Appledore.	No
South West Coast Path	England's longest National Trail of 630 miles around the entire South West peninsula, beginning in Exmoor and ending in Poole Harbour.	Yes
St Mary's Church (Appledore)	The Parish Church of Appledore with regular services.	No
The Sports Ground (Bideford)	The Sports Ground is a football stadium used by Bideford A.F.C. on Kingsley Road in Bideford, Devon.	No
Ultimate Adventure Centre (Abbotsham)	Adventure Centre offering a comprehensive range of outdoor activities, with accommodation totalling 300 beds, a café and function space.	No
Victoria Park (Bideford)	Park in Bideford which includes a variety of recreational facilities, a children's play area, an open-air paddling pool and a skateboard park.	No
Woolacombe Down (National Trust)	Coastline of cliffs, coves, beaches, dunes, and headlands, which is a popular destination for walking.	No
Woolacombe Sands	Popular sandy beach with family holiday park nearby.	No

21.4.1.2.5 Marine Recreational Activities – Surfing and Diving

132. Water sports are very popular in the Local Area. There are many beaches along the coastline of both local authorities, which are abundantly used for water sports and water activities. The beaches at Northam, Saunton Sands, Croyde, Putsborough, and Woolacombe are particularly popular for surfing, wind surfing, and kite surfing. Westward Ho! beach in Torridge is also a Blue Flag site, which is one of the most recognised awards for beaches, marinas, and sustainable boating tourism operators. To qualify for the Blue Flag, a series of stringent environmental, educational, safety, and accessibility criteria must be met and maintained. Westward Ho! beach also has a slipway for boating and other watercrafts.

133. In 2013, Surfers against Sewage carried out a study considering the economic impact of surfing activity across the UK. The study found that surfing activity across the UK directly supports a total of between £1.0 billion and £1.8 billion. The analysis suggested that around 22% of surfers were based in Devon. Researchers at the University of Plymouth are in the process of carrying out an updated assessment of the sector's economic impact.

134. As part of the planning application for the Offshore Project, a wave study was commissioned and found no noticeable changes to the wave environment. Since wave quality will not be affected, other than possible short-term and temporary impacts during construction, no impacts on surfing activity and on surfing businesses onshore are expected.

135. Finstrokes is a website that gives divers detailed information on dive sites along hundreds of miles of shoreline, rivers, lochs, and quarries. There are two sites detailed on Finstrokes in the Local Area that are used for diving, being at Clovelly Beach and Wildersmouth Beach.

21.4.1.2.6 Accommodation Providers

136. There is a substantial number of accommodation providers in the Local Area. VisitEngland undertakes an accommodation census, which gives the most accurate available measure of the accommodation stock in English local authorities. This census includes all quality assessed accommodation, listed accommodation in external business databases, and accommodation registered in regional delivery partners of VisitEngland. The last census was conducted in 2016. Whilst the industry has since been adversely affected by the Covid-19 pandemic, it is expected that the overall findings of the report remain applicable to the nature of the accommodation provision in the Local Area.

137. The study identified a total 1,848 accommodation providers in the Local Area. In North Devon there were 302 serviced accommodation businesses, and 978 non-serviced accommodation providers. In Torridge there were 82 serviced accommodation businesses and 486 non-serviced accommodation providers. A breakdown by type of accommodation businesses is given in **Table 21.28**.

Table 21.28 Accommodation by type, North Devon & Torridge

Accommodation type	North Devon	Torridge	Local Area
Serviced accommodation (hotels and similar establishments)	302	82	384
Non-serviced accommodation (holiday dwellings, tourist campsites)	978	486	1,464
Total	1,280	568	1,848

21.4.1.2.7 Walking and cycling routes

138. There are a variety of walking trails and cycling routes located within North Devon and Torridge. The North Devon Council website (2022) and Torridge Council website (2022) identify several long-distance walking and cycle routes across North Devon and Torridge, including:

- England Coast Path
- Tarka Trail cycle path
- The West Country Way cycle path
- The Devon Coast to Coast cycle route
- La Velodyssee cycle route
- South West Coast Path
- Appledore & Northern Burrows walk
- Codden Hill from Barnstaple Station walk
- Home Farm Marsh Walk from Barnstaple Station
- Westward Ho! Kingsley & Kipling walk
- Westward Ho! to Cornborough Cliffs walk
- Peppercombe Valley trail
- Baggy Point circular walk via Bloodhills Cliff
- Centenary walk at Arlington Court
- Dunster Castle garden route
- Deer Park walk
- Baggy Point to Woolacombe circular walk
- Horner Wood ancient trees walk
- Lake walk at Arlington Court.

139. Out of these 19 long-distance walking and cycle routes, only two - the Tarka Trail and the South West Coast Path – are close to the Onshore Project and with potential to be affected by it. There are also 11 Public Rights of Ways (nine footpaths and two bridleways) interacting with the Onshore Project.

21.4.1.2.8 Relationship between Offshore Windfarms and Tourism

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

141. 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 most people do not perceive windfarms negatively. Furthermore, economic studies of Wales (Regeneris and The Tourism Company 2014) and Scotland (BiGGAR Economics 2021) demonstrate that windfarms have no measurable effect on the tourism economy.

142. With regards to offshore wind, in 2019 BiGGAR Economics carried out an assessment of the impact of tourism and recreation associated with the East Anglia Two Offshore Wind Farm. The analysis considered visitor spending in the Suffolk Coast Area.

143. 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 impacts on tourism activity associated with East Anglia Two Offshore Wind Farm.

21.4.1.2.9 Factors Driving Tourism Activity

144. Based on existing evidence on tourism and the tourism economy, 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
- the quality and value for money of the services offered by tourism businesses.

145. There exists no relationship between most of these factors and the existence of an offshore wind development or the presence of its onshore infrastructure.

146. In case any evidence was found on changes affecting the existing environment, for a change in tourism activity to happen, the following conditions would need to be met:

- the construction and/or presence of the Onshore Infrastructure 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 chose to visit or the activities that they undertake
- the change in behaviour results in a change in their level of spending
- these changes in visitor spending result in a change in performance of the tourism sector, for example, a change in employment.

21.4.1.2.10 Tourism Baseline Summary

147. The Local Area has a growing tourism sector with activity mostly concentrated around coastal areas. However, most of this activity is unlikely to be affected by the Onshore Project.

148. For instance, of the 25 main visitor attractions in the Local Area, only four are located in proximity of the Onshore Development Area. Similarly, most recreational routes are located far from the Onshore Development Area. This suggests the Onshore Project may, at most, impact a limited number of tourism and recreation assets.

149. Furthermore, available evidence points to the lack of a relationship between onshore and offshore wind development and tourism activity. This is because most of the variables affecting tourism activity are not directly linked with the development of wind farms. Therefore, any impacts will be indirect effects from other environmental issues such as traffic and transport. These secondary effects are discussed in the assessment with reference to other chapters of this ES.

21.4.2 Do Nothing Scenario

150. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 require that "an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge" is included within the ES (EIA Regulations,

Schedule 4, Paragraph 3). From the point of assessment, over the course of the development and operational lifetime of the Onshore Project (operational lifetime anticipated to be a minimum of 25 years), long-term trends mean that the condition of the baseline environment is expected to evolve. This section provides a qualitative description of the evolution of the baseline environment, on the assumption that the Onshore Project is not constructed, using available information and scientific knowledge of socio-economics, tourism and recreation.

151. From the point of assessment, over the course of the construction and operational lifetime of the Onshore Infrastructure the condition of the baseline environment is expected to evolve. This section provides a qualitative description of the evolution of the baseline environment, on the assumption that the Onshore Project is not constructed. The future baseline relies on available information on socio-economics, tourism and recreation.

152. In the context of the Onshore Project not being constructed, inferences can be made based on existing projections. Over the period to 2043, the population of the UK is expected to increase by 9.2% compared to 2018, with a relatively larger increase in the populations of North Devon (15.8%) and Torridge (15.2%).

153. Over the same period, the population structure is expected to change across the two study areas, with a relative increase in the share of the population accounted for by people aged 65+. This trend will be more marked across the Local Area. The lack of investment in the Onshore Project and an underperforming economy in the Local Area may reduce the likelihood of retaining and attracting young people to North Devon and Torridge, and reduce demographic pressures.

154. Based on its legal obligations, the UK will have to reach carbon neutrality by 2050. Even with the Onshore Project not going ahead, there will remain a requirement for the electrification of the economy through renewable energy sources. The Onshore Project constitutes one of the first developments planned in the Celtic Sea. For this reason, if it was not carried out, there may be a risk of delays in the successful use of this seabed area for renewable energy generation.

155. It remains of strategic importance for the UK economy to develop a robust supply chain in the offshore wind sector to benefit from its future expansion. Increasing renewable energy generation through the development of a strong domestic supply chain will have the joint benefits of increasing security of supply while benefitting economic activity.

156. While the Onshore Project cannot on its own affect these dimensions due to its scale, for the UK it remains key to be a first mover in the offshore wind sector. This

will enable the formation of supply chains that may benefit from increasing demand elsewhere across the world. Floating offshore wind is a relatively new technology and, as such, investment in similar projects could support the UK economy and develop domestic industry.

21.4.3 Receptor Sensitivity

157. This section considers each of the receptors included within the analysis and assesses their relative sensitivity to impact.

21.4.3.1.1 Economic Activity in the Local Area

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

159. The socio-economic baseline has identified that in the Local Area:

- a larger share of employment is accounted for by sectors that could deliver construction contracts compared to the UK as a whole. Activity in accommodation and food service activities, which is associated with tourism, accounts for a larger share of employment than across the UK
- there is a lower share of the working age population holding higher qualification levels (NVQ3+ and NVQ4+) compared to the UK average
- levels of employment have increased by 2% over the period between 2010 and 2020, compared to 10% across the UK.

160. Based on these features of its socio-economic structure and in line with the approach outlined in **Table 21.7**, the sensitivity of the economy of the Local Area has been assessed as **medium** sensitivity.

21.4.3.1.2 Economic Activity in the UK

161. 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 Onshore Project could make towards the development of low-carbon industries.

162. The socio-economic baseline has identified that in the UK:

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

163. The sensitivity of the UK economy has therefore been assessed as **low**, in line with the approach outlined in **Table 21.7**.

21.4.3.1.3 Tourism and Recreation Activity in the Local Area

164. This receptor captures any change in tourism spending with knock-on implications on the employment and GVA supported by tourism in the Local Area.

165. The socio-economic baseline has identified that the tourism economy the Local Area:

- is mostly concentrated along the coast
- employment in the tourism sector has grown faster (+48%) over the period between 2015 and 2021 than across the UK (+9%).

166. The approach outlined in **Table 21.9** would therefore indicate that the tourism economy of the Local Area could have a **medium** sensitivity to change.

21.5 Potential Impacts during Construction

167. The potential impacts during construction of the Onshore Project have been assessed for socio-economics, tourism and recreation. A description of the potential effect on socio-economic, tourism and recreation receptors caused by each identified impact is given in this section.

21.5.1 Impact 1: Economic Expenditure

168. The construction of the Onshore Infrastructure associated with the Onshore Project is expected to lead to an increase in economic activity. Companies working in the construction sector will be awarded contracts, which will support their operations. This spending will also have an impact through knock-on expenditure within supply chains (indirect impacts).

169. The assessment of GVA impacts was based on a worst-case scenario where the onshore cable connects East Yelland substation to Saunton Sands and relies on two major Horizontal Directional Drilling (HDD)/trenchless beneath the golf course and Taw, plus several smaller trenches below major ditches/drains. This was considered as the worst-case scenario as it would involve the lowest cost and result in the lowest level of economic activity supported within local businesses.

170. In addition, in line with a worst-case scenario approach, conservative assumptions were made on the ability of local and national businesses to secure contracts. Based on the local industrial structure and the type of contracts required as part of the construction of the Onshore Project, it was assumed that 16% of construction and development spending would take place in the Local Area and 80% would occur within the UK.

21.5.1.1 Magnitude of Impact

171. The starting point in considering GVA impacts involved estimating the spending associated with the Onshore Project's Onshore Infrastructure. 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.

172. 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 per GVA ratios were applied to each specific sub-contract to estimate the direct GVA.

173. There will 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.

174. Those who are directly employed on the construction of the Onshore Infrastructure, or through the supply chain, will also have an impact on the economy through the spending of their salaries. This is the induced impact, and is calculated using the Type 2 multipliers, that are based on the ONS Input–Output Tables.

175. 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 Local Area, where appropriate.

176. The construction of the Onshore Project's Onshore Infrastructure is expected to generate a total of £2 million (direct and indirect) GVA across the Local Area and £13 million within the UK. A summary of impact across study areas is provided as part of **Table 21.29**.

Table 21.29 Construction: total GVA

Parameter	Local Area	UK
Direct GVA (£m)	1	7
Indirect GVA (£m)	<1	6
Total GVA (£m)	2	13
Induced GVA (£m)	<1	5
Total GVA Including Induced (£m)	2	18

177. As set out above, in addition to the direct and supply chain impacts, the economic activity associated with the Onshore Infrastructure will generate induced impacts. These could amount to an extra £1 million GVA within the Local Area and £5 million GVA across the UK economy.

178. The magnitude of the economic impact from the expenditure on the Onshore Infrastructure has been estimated in line with the methodology outlined in **Section 21.2.4** of this chapter. For the purposes of the 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 Onshore Infrastructure and are the focus of similar assessments.

179. In 2020 the GVA generated across the Local Area was £3,100 million, whereas that across the UK economy was £1.9 trillion. At its peak, spending on the Onshore Project's Onshore Infrastructure will be supporting a total £2 million GVA in the Local Area and £7 million GVA across the UK. Based on this, the economic activity associated with the Onshore Project's Onshore Infrastructure is estimated as less than 0.1% of the Local and UK economy.

180. In line with the approach described in **Table 21.4**, the magnitude of the effect on the UK economy is considered **negligible**. Similarly, the magnitude of impact with respect to the economy of the Local Area was assessed as **negligible**.

Table 21.30 Construction: magnitude of GVA impact

Parameter	Local Area	UK
Peak GVA (£m)	2	7
Current GVA of Study Area (2020, £m)	3,100	1,949,600
Peak GVA as % Current GVA	>0.1%	>0.1%
Magnitude of Effect	Negligible	Negligible

21.5.1.2 Sensitivity of the Receptor

181. The sensitivity of socio-economic receptors was discussed as part of **Section 21.4.3**. Based on the analysis in that section, sensitivity was assessed as:

- **medium** for the Local Area
- **low** for the UK economy.

21.5.1.3 Significance of Effect

182. Based on the assessments of sensitivity and magnitude, the effect of spending on the UK, and in the Local Area's economy during the construction of the Onshore Project's Onshore Infrastructure was assessed as **negligible**.

Table 21.31 Construction: significance of GVA impact

Parameter	Local Area	UK
Sensitivity of Receptor	Medium	Low
Magnitude of Impact	Negligible Beneficial	Negligible Beneficial
Significance	Minor Beneficial – Not Significant	Negligible Beneficial

21.5.1.4 Further Mitigation

183. The impact of construction activity on economic expenditure is expected to be beneficial. For this reason, no mitigation is required.

21.5.2 Impact 2: Employment

184. The construction of the Onshore Project's Onshore Infrastructure will also result in the creation of temporary employment across the Local Area and the UK. The estimation of impacts on employment relied on the same methodology and assumptions adopted to estimate impacts on GVA.

185. As the employment supported by construction activity will be temporary, impacts 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.

21.5.2.1 Magnitude of Impact

186. Based on these assumptions, it was possible to estimate the impact on employment (direct and indirect) from the construction of the Onshore Infrastructure associated with the Onshore Project. On this basis, economic activity could result in the creation

of 20 years of employment in the Local Area and 170 years of employment across the UK.

Table 21.32 Construction: total employment

Parameter	Local Area	UK
Direct Employment	10	90
Indirect Employment	10	80
Total Employment	20	170
Induced Employment	10	80
Total Employment Including Induced	30	250

187. In addition to the direct and supply chain impacts considered above, expenditure associated with the Onshore Infrastructure will support economic activity through the spending of those employed during its construction (induced impacts). This could result in an extra 10 years of employment across the Local Area and 80 years of employment across the UK.

188. At its peak, the construction of the Onshore Project's Onshore Infrastructure is expected to support 20 jobs in the Local Area and 90 jobs across the UK. Peak employment was less than 0.1% of total employment across the Local Area and the UK economy.

189. In line with the approach described in **Table 21.4**, the magnitude of the effect on the UK economy is considered **negligible**. The magnitude of the effect on the Local Area's economy was also assessed as **negligible**.

Table 21.33 Construction: magnitude of employment impact

Parameter	Local Area	UK
Peak Employment (Jobs)	20	90
Current Jobs	70,005	30,547,000
Peak Jobs as % Current Jobs	>0.1%	>0.1%
Magnitude of Effect	Negligible	Negligible

21.5.2.2 Sensitivity

190. The sensitivity of socio-economic receptors was discussed as part of **Section 21.4.3**. Based on the analysis in that section, sensitivity was assessed as:

- **medium** for the Local Area

- **low** for the UK economy.

21.5.2.3 Significance of effect

191. Based on the assessment of magnitude and sensitivity, the effect on the UK economy from employment associated with the construction of the Onshore Project's Onshore Infrastructure was assessed as **Negligible Beneficial**. Similarly, the effect on the Local Area was assessed as **Minor Beneficial – Not Significant**.

Table 21.34 Construction: significance of employment impact

Parameter	Local Area	UK
Sensitivity of Receptor	Medium	Low
Magnitude of Impact	Negligible Beneficial	Negligible Beneficial
Significance	Minor Beneficial – Not Significant	Negligible Beneficial

21.5.2.4 Further Mitigation

192. The impact of construction activity on temporary employment is expected to be beneficial. For this reason, no mitigation is required.

21.5.3 Impact 3: Tourism and Recreation

193. Activity associated with the construction of the Onshore Project's Onshore Infrastructure may result in changes to the existing environment which could affect individual sites or recreational activities. This, in and of itself, does not necessarily map out to impacts on the tourism economy. Any impacts on the tourism economy from changes in the baseline environment depend on the interaction between a series of factors, including:

- the overall sensitivity of the Local Area's economy to changes in tourism activity
- the sensitivity of individual tourism receptors affected by the Onshore Project's Onshore Infrastructure
- likelihood that any changes in the baseline environment will affect visitors' decisions, including on whether and for how long to visit the Local Area.

194. The overall sensitivity of the local tourism economy is discussed in **Section 21.3.2.2.2**. Based on professional judgement and the literature on the relationship between offshore wind development and tourism, the analysis considers how the Onshore Project may impact on the features of each tourism asset. A further assessment is then made on whether any changes will affect the level of economic activity supported by each asset.

195. Consideration of changes to the baseline environment of individual tourism and recreation assets relies on evidence from the following chapters:

- **Chapter 15: Land Use**
- **Chapter 18: Noise and Vibration**
- **Chapter 19: Traffic and Transport**
- **Chapter 20: Onshore Landscape and Visual Amenity**.

21.5.3.1 Magnitude of Impact

196. The worst-case scenario is based on the landfall (to MLWS) site being at Saunton Sands.

197. The literature review on the relationship between windfarms and tourism activity provided an example of a study (BiGGAR Economics, 2019) finding that construction activity, including onshore activity, did not result in negative changes to the tourism economy. This would suggest no relationship between these two variables based on existing experience. Despite this, any impacts on key assets are considered to account for the specific tourism offer of the Local Area.

198. As set out in **Section 21.4,** surfing is a relatively important marine recreational activity in the Local Area. Saunton Sands was identified as one of the beaches in the Local Area being popular for this kind of activity, alongside wind surfing and kite surfing.

199. The landfall (to MLWS) site at Saunton Sands may lead temporarily to limited access, as well as any temporary disruption to Saunton Beach Car Park. While these may, in turn, have an impact on surfing and businesses in the tourism economy benefitting from it (e.g., businesses in accommodation and food service activities), impacts are expected to be limited as a result of mitigation measures at design stage.

200. In particular, requirements for the use of the car park have been scaled down to avoid impacts on visitors. In addition, the timing and phasing of works was modified to reduce the extent of works during the peak season and to reinstate and hand-back for recreational use those areas impacted by the Onshore Project as construction works are completed.

201. The analysis in **Chapter 15: Land Use** finds no significant impact on recreational users. This is the result of mitigations proposed by the Applicant including appropriately fenced (unmanned) crossing points; manned crossing points; and temporary alternative routes. On this basis, impacts on the tourism economy or specific recreational routes as a result of the Onshore Project are unlikely.

202. Similarly, the analysis in **Chapter 19: Traffic and Transport** finds no significant adverse effects. This is the result of a series of mitigation measures the Applicant has embedded within the design of the Project. These include the drafting and submission of an Outline Construction Traffic Management Plan, the commitment to delivering road works outside the summer season and a strategy for access to the Onshore Export Cable Corridor. On this basis, access to tourism and recreation assets in the Local Area is not expected to be particularly impacted by the Onshore Project.

203. The assessment of effects from construction activity in **Chapter 20 Onshore Landscape and Visual Amenity** focussed on two epicentres of impact:

- the area around the Onshore Project's landfall and the onshore export cable corridor; and
- the area around the Onshore Substation.

204. Activity at Saunton Sands Car Park and the presence of vessels close to shore was found to have significant adverse effects on views at Saunton Sands, Saunton beach cabin holiday homes and on some sections of the South West Coast Path (north and south of the River Taw).

205. However, as noted in **Chapter 20 Onshore Landscape and Visual Amenity**, 'people using the beach would have limited visibility of the works at the temporary construction compound'. Similarly, while within Saunton Sands Car Park there would be visibility of construction activity, this would sit within 'hardstanding, frequently used by vehicles.' Works are not expected to affect some of the main reasons driving visitors to Saunton Sands including views from, quality of the beach and sea. As a result, it is unlikely temporary works will have an impact on visitors.

206. The visual assessment also found significant effects on two sections of the South West Coast Path - a 1km section between Instow Cricket Club and the north of East Yelland Substation, and the section between Broad Sands car park and around 0.7km to the east of Crow Beach House.

207. The South West Coast Path is a 960km long-distance recreational route, of which 144km run through North Devon. Given that a total 1.7km would be significantly affected by works, it is expected construction activity at Saunton Sands will have a limited impact on visitors, as they will still be able to walk along other North Devon sections of the South West Coast Path which will be unaffected by the Onshore Project. Furthermore, any impacts associated with works at the Onshore Project's

landfall and the onshore export cable corridor would be temporary (over an 18-month period) and reversible.

208. Construction activity at the Onshore Substation was found to have significant visual effects on a section of the Tarka Trail, on views from the South West Coast Path and a ProW: Instow footpath no.16.

209. The Tarka Trail is a 160km long trail exploring North Devon. Given the Trail's length, temporary disruption on some of its sections is unlikely to affect overall usage and to disrupt local tourism activity to any significant degree. Similarly, effects on views at Broad Sands Car Park and their impact on elements of the South West Coast Path are expected to be geographically confined and not to affect the area's overall tourism economy.

210. Finally, visual disruption to PRoW, Instow footpath no.16 is unlikely to result in significant effects on tourism activity. This is because PRoWs tend to be used more by local residents than visitors, and residential users are less of a driver of spending within tourism businesses.

211. Based on the analysis provided above and evidence from other chapters on potential environmental issues with an effect on tourism and recreation activity, the magnitude of impact with respects to the local tourism and recreation economy was assessed as **Low Adverse**.

21.5.3.2 Sensitivity of the Receptor

212. As set out in **Section 21.4.3,** tourism and recreation activity in the Local Area has witnessed faster growth than across the UK and has relatively more importance as a sector. For these reasons, the sensitivity of tourism and recreation activity to change was assessed as **medium**.

213. Saunton Sands is one of a few beaches in the Local Area (Northam, Saunton Sands, Croyde, Putsborough, and Woolacombe) that are used by surfers. As such, surfing activity was assessed as having **medium** sensitivity to any changes to the existing environment at Saunton Sands.

21.5.3.3 Significance of Effect

214. Based on the assessment of sensitivity and magnitude, the effect of the Onshore Project's Onshore Infrastructure construction on tourism and recreation was assessed as **Minor Adverse – Not Significant** with respects to the economy of the Local Area.

Table 21.35 Construction: significance of tourism and recreation

	Local Area
Sensitivity of Receptor	Medium
Magnitude of Impact	Low Adverse
Significance	Minor Adverse – Not Significant

21.5.3.4 Further Mitigation

215. Mitigation measures with regards to Saunton Beach Car Park have been described above. No further mitigation measures are envisaged as a result of the assessment.

21.6 Potential Impacts during Operation and Maintenance

216. The potential impacts of the operation and maintenance of the Onshore Project's Onshore Infrastructure have been assessed only with regards to tourism and recreation activity.

217. Any expenditure and employment supported by the operation and maintenance of the Onshore Infrastructure was considered negligible in scale and, for that reason, was scoped out of the assessment.

21.6.1 Impact 3: Tourism and Recreation

218. This section considers the potential impact the Onshore Infrastructure, inclusive of cable infrastructure and any changes to the substation at East Yelland, may have on tourism and recreation activity in the Local Area.

219. The assessment was informed by a review of the impacts identified within:

- **Chapter 15: Land Use**
- **Chapter 18: Noise and Vibration**
- **Chapter 19: Traffic and Transport**
- **Chapter 20: Onshore Landscape and Visual Amenity**.

21.6.1.1 Magnitude of Impact

220. The worst-case scenario with regards to impacts on tourism during operations is based on the landfall (to MLWS) site being at Saunton Sands.

221. Given the cable infrastructure will be underground and connect to an existing substation, it is unlikely that the Onshore Infrastructure will result in any permanent changes to the baseline environment.

222. Traffic and transport considerations were scoped out of the assessment. Similarly, **Chapter 15: Land Use** found no impacts with respects to any disruption to users of recreational routes. While the assessment in **Chapter 20: Onshore Landscape and Visual Amenity** did consider visual effects during the operations and maintenance phase, it found no significant effects.

223. In addition, while there will be a transition joint bay within the car park, any scheduled operations and maintenance activities will be planned to minimise disruption and will involve minimal presence on site. Any major works, such as cable replacement, are unlikely and again could be planned to minimise disruption.

224. For all these reasons, it is unlikely visitors will be affected by the presence of the Onshore Infrastructure.

225. On this basis, the magnitude of impact from the Onshore Project's Onshore Infrastructure and its operations on the tourism economy of the Local Area was assessed as **negligible**

21.6.1.2 Sensitivity of the Receptor

226. The local tourism economy is more likely to be susceptible to any changes compared to its baseline and less likely to absorb any shocks compared to the national economy. On this basis, the sensitivity of the tourism economy of the Local Area was assessed as **medium** sensitivity.

21.6.1.3 Significance of Effect

227. Based on the assessment of magnitude and sensitivity, during its operations the effect of the Onshore Project's Onshore infrastructure on economic and social infrastructure was assessed as **Minor Adverse – Non Significant** for the Local Area.

Table 21.36 Operation and Maintenance significance of impacts on tourism and recreation

	Local Area
Sensitivity of Receptor	Medium
Magnitude of Impact	Negligible
Significance	Minor Adverse – Non Significant

21.6.1.4 Further Mitigation

228. No mitigation measure with regards to impacts on tourism and recreation during the operations of the Onshore Project is envisaged at this stage.

21.7 Potential Impacts during Decommissioning

229. No decision has been made regarding the final decommissioning policy for the Onshore Project as it is recognised that industry best practice, rules and legislation change over time.

230. The anticipated decommissioning activities are outlined in **Section 21.3.3**. The potential impacts of the decommissioning of the Onshore Project have been assessed for socio-economics, tourism and recreation on the assumption that decommissioning methods will be similar or of a lesser scale than those deployed for construction. The types of impact would be comparable to those identified for the construction phase:

- Impact 1: Economic Activity
- Impact 2: Employment.

231. The magnitude of impacts would be comparable to or less than those identified for the construction phase. Accordingly, given the construction phase assessments concluded "**no significant effect**" for socio-economic, tourism and recreation receptors, it is anticipated that the same would be valid for the decommissioning phase regardless of the final decommissioning methodologies.

21.8 Potential Cumulative Effects

232. The approach to CEA is set out in **Chapter 6: EIA Methodology**. Only projects which are reasonably well described and sufficiently advanced to provide information on which to base a meaningful and robust assessment have been included in the CEA. Projects which are sufficiently implemented during the site characterisation for the Onshore Project have been considered as part of the baseline for the EIA. Where possible the Applicant has sought to agree with stakeholders the use of as-built project parameter information (if available) as opposed to consented parameters to reduce over-precaution in the cumulative assessment. The scope of the CEA was therefore be established on a topic-by-topic basis with the relevant consultees.

233. The cumulative effect assessment for socio-economics, tourism and recreation was undertaken in two stages. The first stage was to consider the potential for the effects assessed as part of the Onshore project to lead to cumulative effects in conjunction with other projects. The first stage of the assessment is detailed in **Table 21.37**.

Table 21.37 Potential cumulative effects considered for socio-economics, tourism and recreation

Impact	Potential for cumulative effect	Rationale
Construction		
Impact 1: Expenditure	Yes	Multiple construction projects onshore may have the potential to lead to the attraction of investment and to strengthen the local business base. They may also result in pressures on the local industrial base.
Impact 2: Employment	Yes	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 employment supported by the construction of each project.
Impact 3: Tourism and Recreation	Yes	The construction of multiple projects has the potential to result in disruption to existing recreational and tourism activity.
Operations and Maintenance		
Impact 3: Tourism and Recreation	Yes	The operation of multiple projects has the potential to result in disruption to existing recreational and tourism activity.

234. Only potential impacts assessed in **Section 21.5, Section 21.6** and **Section 21.7** as negligible or above are included in the CEA (i.e. those assessed as 'no impact' are not taken forward as there is no potential for them to contribute to a cumulative effect).

235. The second stage of the CEA is to evaluate the projects considered for the CEA to determine whether a cumulative effect is likely to arise. The list of considered projects (identified in **Chapter 6: EIA Methodology**) and their anticipated potential for cumulative effects are summarised in **Table 21.38**.

Table 21.38 Projects considered in the cumulative effect assessment on socio-economics, tourism and recreation

Project	Status	Distance from Onshore Development Area (km)	Included in the CEA?	Rationale	Project Details
White Cross Offshore Project	Consent application submitted	0	Yes	Overlap in spatial extent and timing of works.	
Sandy Lane dwelling	Approved	Within Area of Search (AoS)	No	Development small scale	Erection of one dwelling

Project	Status	Distance from Onshore Development Area (km)	Included in the CEA?	Rationale	Project Details
				and therefore unlikely to result in significant cumulative effects.	off Sandy Lane.
Sandy Lane Farm Lane Over Swanpool Bridge	Approved	Within AoS	No	Development small scale and therefore unlikely to result in significant cumulative effects.	Erection of shed building.
20 West Yelland Yelland Barnstaple	Pending	Within AoS	No	Development small scale and therefore unlikely to result in significant cumulative effects.	Outline application for erection of three dwellings and alteration to existing highway access.
The Stables South Hole Farm	Approved	Within AoS	No	Development small scale and therefore unlikely to result in significant cumulative effects.	Erection of bat shed.
Yelland Quay Developme nt	Appeal – Approved	0.2km to substation Red-Line Boundary (RLB)	No	The development will not to compete for the same specialist skills required for the Onshore Project.	Hybrid application, including outline application for 250 dwellings, up to 3,000 sqm employment space.
Chilpark Fremington Devon	Pending	2km to substation RLB	No	The development will not to	Residential development comprising of

Project	Status	Distance from Onshore Development Area (km)	Included in the CEA?	Rationale	Project Details
				compete for the same specialist skills required for the Onshore Project.	101 homes, infrastructure including access works and associated open space.
Land at Pitt Hill Appledore	Pending	1.7km to onshore cc (substation area)	No	The development will not to compete for the same specialist skills required for the Onshore Project.	Residential development comprising the construction of 27 dwellings with associated access, estate roads, infrastructure, open space and landscaping.
Land at Chivenor Cross, Chivenor, Braunton, EX31 4BN	Approved	2.4km to RLB	No	The development will not to compete for the same specialist skills required for the Onshore Project.	Phase 2 development for the erection of six buildings comprising of 28 units for use classes E(g), B2 and B8.
Land at Yelland Road	Approved	0.6km to substation RLB	No	The development will not to compete for the same specialist skills required for the Onshore Project.	Outline application for erection of residential development for 80 dwellings.

236. It is noted that the first project listed is the Section 36 consent application for the offshore components of the White Cross Offshore Wind Farm (OWF) which are a separate element to the onshore Town and Country Planning Application for which

this ES is prepared. The specific combined project components are assessed cumulatively first and then cumulatively with all other projects.

237. The analysis also considered onshore requirements for other offshore projects. However, it did not find any offshore projects with the potential to impact upon the Onshore Project's Infrastructure.

21.8.1 Cumulative Effect 1: Economic Expenditure

238. The main opportunity linked with the delivery of the Onshore Project's infrastructure will come from the construction of the wider Project. The delivery of the Project's offshore infrastructure was assessed as resulting in no change in the Local Area and a negligible effect on economic activity at UK level. As the offshore infrastructure constitutes most of the spending on the wider Project, cumulative effects are expected not to be different than the effects considered earlier in the chapter.

239. The other onshore developments identified within the cumulative list are:

- different in nature compared to the Onshore Project's infrastructure
- relatively small in scale and have limited complementarities with it
- likely to be constructed by the time construction starts on the Onshore Project's infrastructure.

240. Therefore, it is unlikely there will be competition for labour resources as a result of these other projects.

21.8.1.1 Significance of Effect

241. Based on the projects identified in the list of cumulative sites, the cumulative effect from the economic expenditure associated with construction activity was assessed as **negligible** with respects to the Local Area's and the UK economy.

21.8.1.2 Further Mitigation

242. No further mitigation measures are envisaged and given the different nature of developments, no possibilities for enhancement are envisaged.

21.8.2 Cumulative Effect 2: Employment

243. The onshore developments identified within the cumulative list are all developments different in nature compared to the Onshore Project's Infrastructure. They are all relatively small in scale and have limited complementarities with it.

244. For this reason, no issues on supply chain capacity are likely to occur, nor there is potential for development of local businesses and their supply chains.

245. The main opportunity linked with the delivery of the Onshore Infrastructure is represented by the realisation of the Onshore Project. This, through its offshore infrastructure, is expected to deliver no impact on employment within the Local Area and a negligible impact with regards to the UK economy.

21.8.2.1 Significance of Effect

246. Based on the projects identified in the list of cumulative sites, the effect from employment coming from the construction of those projects on the Local Area's economy and on the UK economy was assessed as **negligible**.

21.8.2.2 Further Mitigation

247. No further mitigation measures are envisaged and given the different nature of developments, no possibilities for enhancement are envisaged.

21.8.3 Cumulative Effect 3: Tourism and Recreation

248. The construction of a series of developments may, in theory, result in the disruption of tourism and recreation assets.

21.8.3.1 Significance of Effect

249. Given the type of developments considered as part of the cumulative list, it is unlikely that they will lead to any additional impacts on tourism and recreation assets during their construction.

250. The overall effect is not expected to be dissimilar from the one associated with the Onshore Project's Infrastructure. For this reason, the cumulative effect was assessed as **Minor – Non Significant**.

21.9 Potential Transboundary Impacts

251. The Scoping Report identified that there was no potential for significant transboundary effects regarding socio-economics, tourism and recreation from the Onshore Project upon the interests of other European Economic Area (EEA) States and this is not discussed further.

21.10 Inter-relationships

252. Inter-relationship impacts are covered as part of the assessment and consider impacts from the construction, operation or decommissioning of the Onshore Project on the same receptor (or group). A description of the process to identify and assess these effects is presented in **Chapter 6: EIA Methodology**. The potential inter-

relationship effects that could arise in relation to Socio-economics, tourism and recreation include both:

- Project lifetime effects: Effects arising throughout more than one phase of the Onshore 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
- Receptor led effects: Assessment of the scope for all relevant 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.

253. **Table 21.39** serves as a sign-posting for inter-relationships.

Table 21.39 Socio-economics, tourism and recreation Inter-relationships

Topic and description	Related chapter	Where addressed in this Chapter	Rationale
Construction			
Land Use	Chapter 15	**Section 21.5**	The construction of the Onshore Infrastructure could have an impact on existing economic activity by affecting land use.
Traffic and Transport	Chapter 19	**Section 21.5**	Traffic resulting from the Onshore Infrastructure could restrict or affect access to tourism and recreation assets.
Onshore Landscape and Visual Amenity	Chapter 20	**Section 21.5**	The construction of the Onshore Infrastructure could result in landscape and visual impacts affecting recreation and tourism assets.
Operations			
Land Use	Chapter 15	**Section 21.5**	The presence of the Onshore Infrastructure could result in permanent changes in land use, having an economic impact on existing users.
Onshore Landscape and Visual Amenity	Chapter 20	**Section 21.5**	The presence of the Onshore Infrastructure could result in landscape and visual impacts

Topic and description	Related chapter	Where addressed in this Chapter	Rationale
			affecting recreation and tourism assets.

21.11 Interactions

254. The impacts identified and assessed in this chapter have the potential to interact with each other, which could give rise to synergistic impacts as a result of that interaction. The areas of interaction between impacts are presented in **Table 21.40**, along with an indication as to whether the interaction may give rise to synergistic impacts. This provides a screening tool for which impacts have the potential to interact.

255. **Table 21.42** then provides an assessment for each receptor (or receptor group) related to these impacts in two ways. Firstly, the impacts are considered within a development phase (i.e. construction, operation, maintenance or decommissioning) to see if, for example, multiple construction impacts could combine. Secondly, a lifetime assessment is undertaken which considers the potential for impacts to affect receptors across development phases. The significance of each individual impact is determined by the sensitivity of the receptor and the magnitude of effect; the sensitivity is constant whereas the magnitude may differ. Therefore, when considering the potential for impacts to be additive it is the magnitude of effect which is important – the magnitudes of the different effects are combined upon the same sensitivity receptor. If minor impact and minor impact were added this would effectively double count the sensitivity.

21.12 Summary

256. This chapter has investigated the potential effects on socio-economic, tourism and recreation receptors arising from the Onshore Project. The range of potential impacts and associated effects considered has been informed by the Scoping Opinion, consultation, and agreed through Expert Topic Group (ETG) Meetings, as well as reference to existing policy and guidance. The impacts considered include those brought about directly as well as indirectly.

257. This chapter has set economic activity in the context of the areas it will affect. The Onshore Project's Onshore Infrastructure has an impact on the socio-economy, tourism and recreation of Torridge, North Devon, and the UK. The Local Area has a more imbalanced population structure than the rest of the UK, with a larger share of people aged 65+ years old. These trends are set to reinforce in the future, which points to the importance for the Local Area to attract high value economic activity.

258. **Table 21.43** presents a summary of the impacts assessed within this ES chapter, any commitments made, and mitigation required and the residual effects. The assessment did not identify any significant effects.

259. The assessment of cumulative effects from the Onshore Project and other developments and activities concluded that activity associated with construction of different projects in the Local Area would not affect the economic impact and opportunities associated with the Onshore Project's Infrastructure.

Table 21.40 Interaction between impacts during construction

Potential impact			
Construction	Impact 1: Economic Expenditure	Impact 2: Employment	Impact 3: Tourism and Recreation
Impact 1: Expenditure		Yes	Yes
Impact 2: Employment	Yes		Yes
Impact 3: Tourism and Recreation	Yes	Yes	

Table 21.41 Interaction between impacts during decommissioning

Potential impact			
Construction	Impact 1: Economic Expenditure	Impact 2: Employment	Impact 3: Tourism and Recreation
Impact 1: Expenditure		Yes	Yes
Impact 2: Employment	Yes		Yes
Impact 3: Tourism and Recreation	Yes	Yes	

Table 21.42 Potential interactions between impacts on socio-economics, tourism and recreation

Highest level significance					
Receptor	**Construction**	**Operation and Maintenance**	**Decommissioning**	**Phase Assessment**	**Lifetime Assessment**
Economic Expenditure - UK	Negligible	Scoped Out	Negligible	Negligible	Negligible
Employment - UK	Negligible	Scoped Out	Negligible	Negligible	Negligible
Economic Expenditure – Local Area	Minor – Not Significant	Scoped Out	Minor – Not Significant	Minor – Not Significant	Minor – Not Significant
Employment – Local Area	Minor – Not Significant	Scoped Out	Minor – Not Significant	Minor – Not Significant	Minor – Not Significant
Tourism and Recreation – Local Area	Minor – Non Significant	Negligible – Non significant	Scoped Out	Minor – Not Significant	Negligible – Non significant

Table 21.43 Summary of potential impacts for socio-economics, tourism and recreation during construction, operation, maintenance and decommissioning of the Onshore Project

Potential impact	Receptor	Sensitivity	Magnitude	Significance	Mitigation measure	Residual effect
Construction						
Impact 1: Economic Expenditure	UK economy	Low	Negligible Beneficial	Negligible Beneficial	N/A	Negligible Beneficial
	Local Area economy	Medium	Negligible Beneficial	Minor Beneficial	N/A	Minor Beneficial
Impact 2: Employment	UK economy	Low	Negligible Beneficial	Negligible Beneficial	N/A	Negligible Beneficial
	Local Area economy	Medium	Negligible Beneficial	Minor Beneficial	N/A	Minor Beneficial
Impact 3: Tourism and Recreation	Local Area tourism economy	Medium	Low Adverse	Minor Adverse	N/A	Minor Adverse
Operation and Maintenance						
Impact 3: Tourism and Recreation	Local Area tourism economy	Medium	Negligible Adverse	Minor Adverse	N/A	Minor Adverse
Decommissioning						
Impact 1: Economic Expenditure	UK economy	Low	Negligible Beneficial	Negligible Beneficial	N/A	Negligible Beneficial
	Local Area economy	Medium	Negligible Beneficial	Minor Beneficial	N/A	Minor Beneficial
Impact 2: Employment	UK economy	Low	Negligible Beneficial	Negligible Beneficial	N/A	Negligible Beneficial
	Local Area economy	Medium	Negligible Beneficial	Minor Beneficial	N/A	Minor Beneficial
Impact 3: Tourism and Recreation	Local Area tourism economy	Medium	Low Adverse	Minor Adverse	N/A	Minor Adverse

Potential impact	Receptor	Sensitivity	Magnitude	Significance	Mitigation measure	Residual effect
Cumulative						
Economic Expenditure – construction	UK economy	Low	Negligible Beneficial	Negligible Beneficial	N/A	Negligible Beneficial
Employment – construction	UK economy	Low	Negligible Beneficial	Negligible Beneficial	N/A	Negligible Beneficial
Economic Expenditure - construction	Local Area economy	Medium	Negligible Beneficial	Minor Beneficial	N/A	Minor Beneficial
Employment - construction	Local Area economy	Medium	Negligible Beneficial	Minor Beneficial	N/A	Minor Beneficial
Tourism and recreation- construction	Local Area	Medium	Low Adverse	Minor Adverse	N/A	Minor Adverse
Tourism and recreation - operations	Local Area	Medium	Negligible Adverse	Minor Adverse	N/A	Minor Adverse

21.13 References

260. Aitchison (2004). Fullabrook Wind Farm proposal, North Devon - evidence gathering of the impact of wind farms on visitor numbers and tourist experience.

261. BiGGAR Economics (2021). Wind Farms & Tourism Trends in Scotland: Evidence from 44 Wind Farms Available from: https://biggareconomics.co.uk/wp-content/uploads/2021/11/BiGGAR-Economics-Wind-Farms-and-Tourism-2021.pdf

262. BiGGAR Economics (2019). East Anglia ONE North and East Anglia TWO Offshore Wind Farms: Tourism Impact Review Available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-002667-ExAWQ1A13D1V1EA1NEA2Applicants%E2%84%A2ResponsestoWQ1Appendix13TourismImpactReview_378285_1.pdf

263. Braunton Parish Council (2018). Braunton Parish Neighbourhood Plan – 2018-2030. https://www.brauntonparishneighbourhoodplan.org.uk/wp-content/uploads/sites/148/2022/11/Neighbourhood-Plan-5-economy-11thNOVEMBER-2022-Submission-Version-9th-trial.pdf [Accessed 20 July 2023]

264. Department of Energy & Climate Change (2011b). Overarching National Policy Statement for Energy. Online. 1938-overarching-nps-for-energy-en1.pdf (publishing.service.gov.uk). [Accessed 22 September 2022].

265. Department of Energy & Climate Change (2011b). Overarching National Policy Statement for Renewable Energy.

266. Infrastructure. Online. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37048/1940-nps-renewable-energy-en3.pdf [Accessed March 2023].

267. Finstrokes (2022). Dive Map. Available: https://www.finstrokes.com/dive-map

268. Glasgow Caledonian University/Moffat Centre (2008). The Economic Impacts of Wind Farms on Scottish Tourism. Available from: https://www.gov.scot/publications/economic-impacts-wind-farms-scottish-tourism/

269. Kantar (2020). Great Britain Day Visits Survey. Available from: https://www.visitbritain.org/gb-day-visits-survey-latest-results

270. Kantar (2020). Great Britain Tourism Survey. Available from: https://www.visitbritain.org/sites/default/files/vb-corporate/gb_tourist_annual_report_2019_final.pdf

271. Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf). Accessed April 2023.

272. National Records of Scotland (2020). Population Projections for Scottish Areas (2018-based). Available from: https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections/2018-based

273. NFO (2003). Investigation into the potential impact of wind farms on tourism in Wales. Available from: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020014/EN020014-001080-Mr%20Iwan%20Jones.pdf

274. NISRA (2021). 2018-Based Population Projections: Principal Projection. Available from: https://www.nisra.gov.uk/publications/2018-based-population-projections-northern-ireland

275. North Devon Council (2022). Walking. Available: https://www.northdevon.gov.uk/environment/smarter-travel/walking/

276. North Devon Yacht Club (2022). Club. Available at: https://ndyc.org/page/club

277. Northumbria University (2014). Evaluation of the impacts of onshore wind farms on tourism. Available from: https://researchportal.northumbria.ac.uk/en/publications/evaluation-of-the-impacts-of-onshore-wind-farms-on-tourism

278. Office for National Statistics (ONS) (2022). Regional gross domestic product: enterprise regions. Available from: https://www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/regionalgrossdomesticproductenterpriseregions

279. ONS (2022). Regional gross value added (balanced) per head and income components. Available from: https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/nominalregionalgrossvalueaddedbalancedperheadandincomecomponents

280. ONS (2022). Annual Survey of Hours and Earnings – resident analysis. Available from: https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=30

281. ONS (2022). Input-output supply and use tables. Available: https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/inputoutputsupplyandusetables

282. ONS (2021). Annual Population Survey. Available from: https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=17

283. ONS (2021). Business Register and Employment Survey. Available from: https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=189

284. ONS (2021). Population estimates – local authority based by single year of age. Available from: https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=2002

285. ONS (2021). Annual Business Survey. Available: www.nomisweb.co.uk

286. ONS (2020). 2018-based Population Projections. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2018based#:~:text=The%20population%20of%20England%20is,2018%2Dbased%20national%20population%20projections.

287. Regeneris and The Tourism Company (2014). Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector. Available from: https://gov.wales/sites/default/files/publications/2019-06/potential-economic-impact-of-wind-farms-on-welsh-tourism_0.pdf

288. Stats Wales (2021). Population Projections by year and age. Available from: https://statswales.gov.wales/Catalogue/Population-and-Migration/Population/Projections

289. Surfers Against Sewage (2013). The Economic Impact of Domestic Surfing on the United Kingdom. Available from: https://www.sas.org.uk/wp-content/uploads/SAS-Economic-Impact-of-domestic-surfing-on-the-UK-med-2.pdf

290. Torridge Council (2022). Walks and Trails. Available from: https://www.torridge.gov.uk/article/19873/Walks-and-Trails

291. UK Government (2019). English Indices of Deprivation 2019. Available from: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

Appendix 21.A: Economic Impact Assessment

BiGGAR Economics

WHITE CROSS

Economic Impact of White Cross Offshore Windfarm

A report to Cobra and Flotation Energy
July 2023

BiGGAR Economics

Contents

1. Preface

This report brings together the economic analysis of onshore and offshore activity to provide a full picture of the economic impact from White Cross Offshore Windfarm.

Spending on the offshore and onshore elements of White Cross Offshore Windfarm will have a positive impact on the local, regional and UK economy. To date, the analysis of impacts from this project has considered onshore and offshore elements separately to support the respective planning application processes. This report adds to the existing evidence by estimating the economic impact from the project. In this way, it sets out the full scale of economic activity supported by White Cross Offshore Windfarm.

The document is intended for use by Cobra and Flotation Energy for engagement with stakeholders. While being based on the same methodology as the analysis included within the Environmental Statements submitted as part of the onshore and offshore applications, its focus is different. For this reason, it should be read in conjunction with the evidence from the Environmental Statements, rather as an alternative.

In addition to focussing on total impacts, a different choice of study areas compared to the Environmental Statements was made. In line with the report's focus on defining the scale of economic opportunities, the analysis considers impacts across a Regional Area encompassing the South West and Wales. This is the geographical area that is likely to include the construction port, which is one of the main sources of UK-based activity during the construction period.

Adding value on the analysis included in the Environmental Statements, this report also considers impacts under different supply chain scenarios. This allows for consideration of what the project's economic footprint could be beyond a worst-case scenario approach.

2. Executive Summary

The development, construction and operation of Cobra and Flotation Energy's White Cross Offshore Windfarm has the potential to generate a significant level of economic activity in the South West, Wales and the UK economies.

Cobra and Flotation Energy's proposed White Cross Offshore Windfarm (OWF) is expected to feature six 16 MW turbines for a total expected generating capacity of up to 100 MW. The Windfarm, located 50 km off the coasts of Devon and Cornwall, will use an innovative floating substructure technology anchored to the seabed.

Figure 2.1 Assumed Contract Values and Shares by Project Stage

Stage	Region	UK	Total
Development	£31 m (61%)	£40 m (81%)	£50 m (100%)
Manufacturing & fabrication	£46 m (10%)	£167 m (36%)	£459 m (100%)
Installation	£7 m (21%)	£19 m (62%)	£31 m (100%)
Operations	£4 m (77%)	£5 m (82%)	£6 m (100%)
TOTEX	£192 m (28%)	£342 m (50%)	£682 m (100%)

The impacts have been measured across two project stages: capital expenditure (CAPEX) and operational expenditure (OPEX)[1]. During the lifetime of White Cross Offshore Windfarm, it is expected that £682 million will be spent on the development, construction, operation and maintenance of the Windfarm. Companies and organisations in the South West and Wales (i.e., the regional study area) are expected to be awarded contracts worth approximately £192 million during this

[1] CAPEX is equivalent to the construction phase in the ES, whereas OPEX is equivalent to the operations and maintenance phase.

period. Businesses across the UK are expected to receive £342 million. The largest economic opportunity will be during the development and construction phase of White Cross Offshore Windfarm.

This expenditure will drive economic activity through the Gross Value Added (GVA) and jobs that it supports. During the development and construction phase, it is expected that White Cross Offshore Windfarm will support:

- 840 aFTEs and generate £51 million GVA across the South West and Wales
- 2,720 aFTEs and generate £170 million GVA in the UK.

This economic activity and jobs include those directly employed by White Cross Offshore Windfarm and its contractors as well as the supply chain companies who have allocated a proportion of their time to White Cross Offshore Windfarm.

The impact during the development and construction period is expected to peak in Q2 2024, with an estimated average employment of 370 FTEs across the South West and Wales.

The economic impacts during the operational phase of the project will be long term and this phase represents a significant opportunity to both the regional and UK economies. In an average year, the operational expenditure on White Cross Offshore Windfarm is expected to support:

- 30 jobs and £2 million GVA across the South West and Wales
- 30 jobs and £3 million GVA in the UK.

When the development, construction and operational impacts are combined, the total impact on the direct contractors and the supply chain is expected to be:

- £112 million GVA across the South West and Wales
- £255 million GVA in the UK.

If the full impact is considered, including the induced impacts (i.e., impacts from staff spending across the wider economy), over its lifetime, White Cross Offshore Windfarm will generate:

- £153 million GVA across the South West and Wales
- £359 million GVA in the UK.

These calculations are estimates that are based on the projected share of contracts that will be secured in each of the geographic areas. For every additional 1% of CAPEX which is secured in the South West or Wales, an extra 40 aFTEs will be supported with contractors and their supply chain because of White Cross Offshore Windfarm.

3. Introduction

In 2023, BiGGAR Economics was commissioned by Cobra and Flotation Energy to estimate the economic impacts from White Cross Offshore Windfarm. This report supports the analysis carried out as part of the ES.

3.1 Background

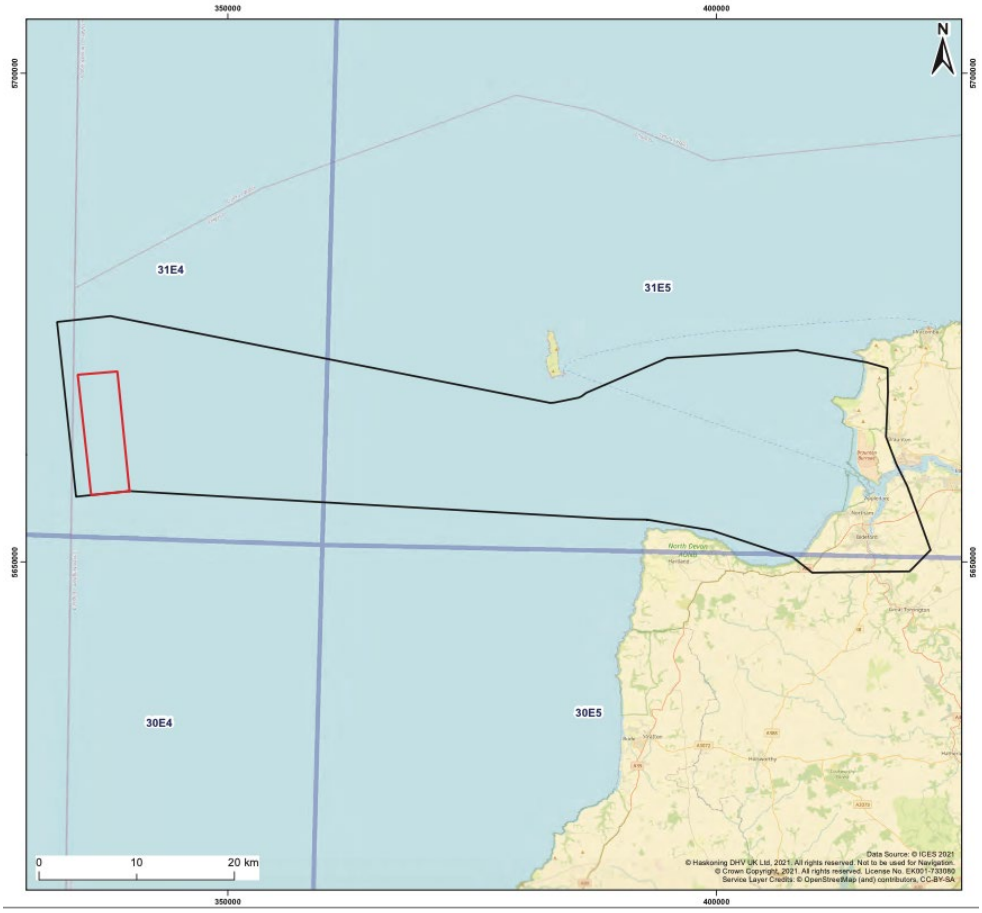
Cobra and Flotation Energy are joint venture partners for White Cross Offshore Windfarm. Cobra Instalaciones y Servicios, S.A. (Cobra) is a company with over 75 years of experience in delivering industrial infrastructure and energy projects. The company has recently focused its activity towards the renewable energy sector, including through the development of floating offshore wind projects.

Flotation Energy brings to the venture its experience in project and engineering management of large infrastructure projects. The company has a pipeline of offshore wind projects with a total generating capacity of more than 13 GW across five countries.

Cobra and Flotation Energy are developing plans for up to seven turbines, and up to 100 MW capacity, floating offshore Windfarm in the Celtic Sea. The Project was selected as part of the Crown Estate's Test and Demonstration leasing opportunity.

In late 2022, BiGGAR Economics supported Cobra and Flotation Energy with the drafting of the socio-economic, tourism and recreation chapter for the Environmental Statement required for both the Project's onshore and offshore infrastructure.

Figure 3.1 Location of White Cross Offshore Windfarm



Source: Cobra and Flotation Energy

3.2 Report Structure

The remainder of this report is structured as follows:

- Section 4 provides a summary of the approach informing the analysis
- Section 5 includes an economic impact assessment
- Section 6 considers impacts over the project's lifetime
- Section 7 considers a range of supply chain development scenarios.

4. Approach

This section outlines the overall approach to the estimation of the economic impact of White Cross Offshore Windfarm, including the parameters of the study and the data sources that were used.

4.1 Definitions

This assessment considered the direct, supply chain and staff spending economic impacts of White Cross Offshore Windfarm. Unless stated otherwise, costs are reported in nominal terms. This involved the following considerations:

- costs have been adjusted for inflation, therefore the values given reflect the nominal, or face, value the contracts will have at the time they are completed
- where it is known how a supplier may procure goods or services, this expenditure has been subtracted from the initial supplier contract and assessed individually to avoid double counting
- contract values are all reported in Pounds Sterling.

In some instances, when necessary, values are reported in real prices. In each case this is explicitly highlighted.

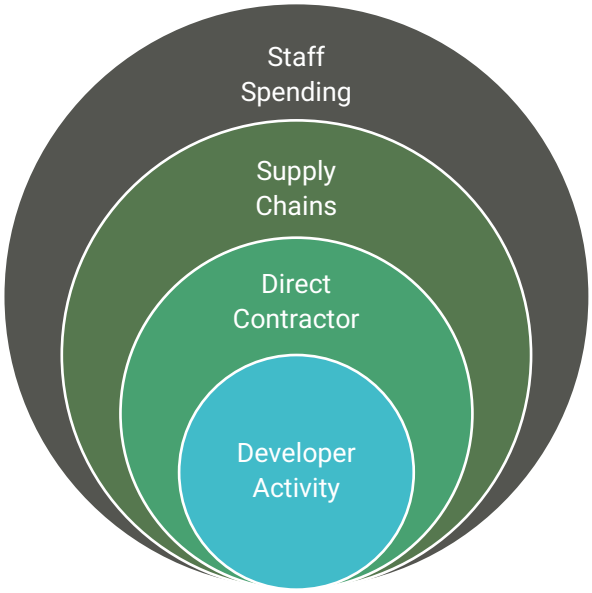
This analysis has considered:

- **Direct impacts** - those impacts that arise from the initial organisation of spend
- **Supply Chain impacts** - those impacts that arise from the supply chain that supports the initial organisation of spend.

This way of reporting the economic impacts from offshore Windfarms reflects best practice and mirrors the approach followed within the ES. For example, if a construction company was contracted by the developer to do the groundworks and foundations for the onshore substation, the direct impacts would capture the jobs directly supported in this construction company by this contract. In addition, this contract would have economic impact and support jobs in their supply chain, such as concrete providers, haulage companies and plant hire. This would be captured in the supply chain impact calculations.

In addition, our analysis has considered the wider economic impact associated with White Cross Offshore Windfarm by providing an estimate of its induced impacts, that is, the economic impact which is associated with the directly employed staff spending their money in the wider economy. While this element was not considered in assessing the scale of impacts within the ES, it is included for reference and future economic impact assessments of White Cross Offshore Windfarm.

Figure 4.1 Levels of Economic Activity and Impact



The analysis of the economic impact from White Cross Offshore Windfarm considers two commonly-used measures of economic activity: Gross Value Added (GVA) and FTEs.

- **Gross Value Added (GVA) –** this is a measure of economic value added by an organisation or industry. It is typically estimated by subtracting the non-staff operational costs from the revenues of an organisation. This has been reported in nominal values, as with expenditure, throughout this report unless stated otherwise
- **Full Time Equivalent (FTEs)** – this is a measure of the employment which is equivalent to one person being employed full time and is used for long term impacts such as those during the operational phase of White Cross Offshore Windfarm. For short term contracts or cumulative employment periods, these employment impacts have been annualised, to indicate one year of full-time equivalent employment. This is denoted as aFTEs

Gross Value Added has been included in the analysis since it gives a more comprehensive picture of the economic impact of White Cross Offshore Windfarm. This aligns with the approach followed in the ES, which relies on this measure of economic activity.

The geographic areas which are used in this analysis allow for consideration of activity at construction and, operations and maintenance ports. The study areas are:

- the South West and Wales; and
- the UK – including some analysis for the rest of the UK.

Unless otherwise stated, the values for each geographic area are reported exclusively, i.e., the figure for 'Rest of UK' does not include the activity within the South West and Wales.

4.2 Method

An economic model has been designed to assess the economic impacts of the proposed offshore wind development. The principle of this model has been applied by BiGGAR Economics to multiple offshore developments, both before and after construction, and the assessment of over 150 onshore renewable energy developments. These principles have also been applied by other assessors when considering the economic impact of offshore Windfarms[2] and are considered best practice.

This model is based on the level of development, capital and operational expenditure for White Cross Offshore Windfarm and the impact that this expenditure would have on the companies and organisations involved. The model estimates the direct, supply chain and induced economic impacts from this expenditure.

The key steps, and data sources that are used at each step of the methodology for estimating the total economic impact of White Cross Offshore Windfarm are outlined in Figure 4.2. This approach ensures that leakages[3] are considered, including at Step 3 when the initial contracts are distributed by geographic area.

[2] BVG Associates (January 2017) A new economic impact methodology for offshore wind

[3] Leakage is the term used to describe economic value that is generated outside the study area, for example from imports to Scotland

Figure 4.2 Economic Impact Methodology and Data Sources

Source: BiGGAR Economics

5. Economic Impact Assessment

This section outlines the economic impacts that White Cross Offshore Windfarm could have and the process through which those calculations are made.

5.1 Expenditure Assumptions

The first step is considering the total level of investment. This would include both the capital investment during the development and construction phase of White Cross Offshore Windfarm and the ongoing investment that would be required during the 25-year operational lifetime.

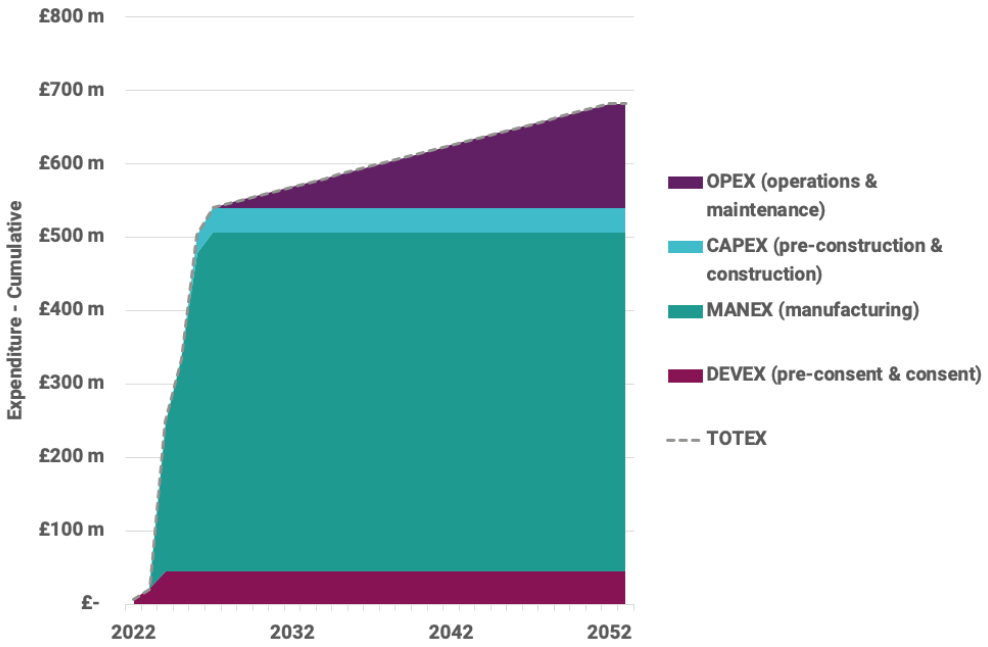
The basis for estimating the cost components of this project are:

- analysis by the National Renewable Energy Laboratory[4] (NREL) estimating that a utility scale floating array would require capital investment equivalent to approximately £5 million per MW ($5.6 million). Figures have been adjusted to account for the smaller size of White Cross Offshore Windfarm, which will limit the scope for the economies of scale reached by the type of developments in the NREL analysis
- discussions on cost estimates by project element with Cobra and Flotation Energy
- analysis of ScotWind Supply Chain Development Statements (SCDS) returns for floating offshore wind projects.

The Total Capital Investment was estimated to be £540 million. This is equivalent to £5.6 million per MW installed. In addition, the average estimated annual expenditure on operations and maintenance would be £5.7 million. This is equivalent to around £141 million over the 25-year lifetime of White Cross Offshore Windfarm. The total estimated investment (TOTEX) is therefore estimated to be £682 million.

[4] National Renewable Energy Laboratory (2022) 2021 Cost of Wind Energy Review. Accessed via https://www.nrel.gov/docs/fy23osti/84774.pdf

Figure 5.1 Total Project Investment over Time, Summary



Source: BiGGAR Economics Analysis

5.2 Contract Elements

The contract components that were used in this analysis are outlined in the table below. For each sub-product/service, a contract value, sector and share of spend in the geographic areas (South West and Wales, rest of UK) were assumed and this was used as the basis for the analysis.

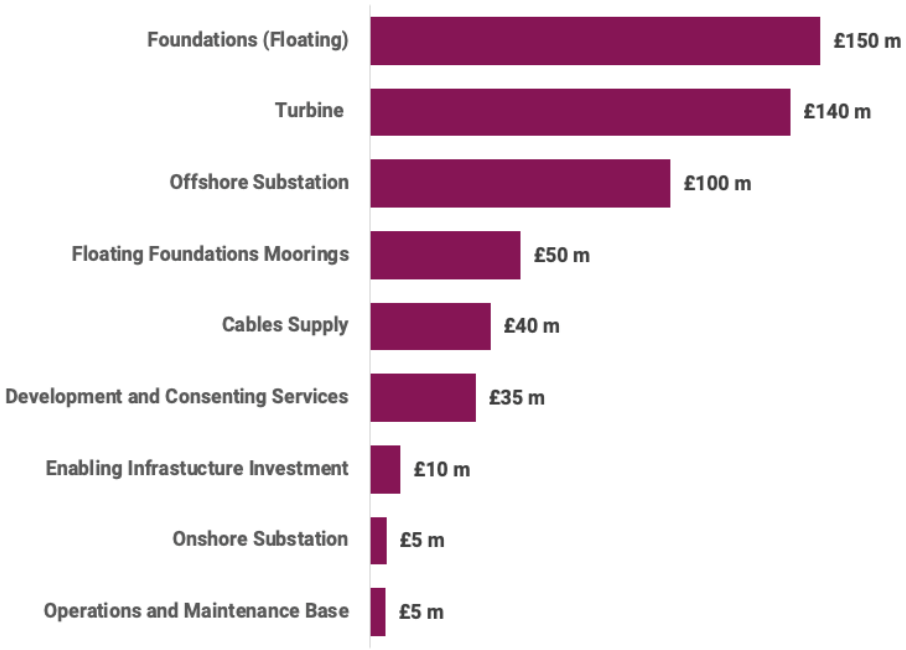
The assumptions for the share of spend for the geographic areas 'South West and Wales' and 'rest of UK' were informed by BiGGAR Economics' understanding of supply chains within the study areas. This was complemented by discussions with Cobra and Flotation Energy, and BVG Associates' report on content at Scottish and UK level[5].

5.2.1 Capital Expenditure

The largest cost component of CAPEX will be the floating foundations, which are expected to cost approximately £150 million. This would be followed by the turbines and the offshore substation. The development costs are estimated to be £35 million.

[5] BVG Associates (2021). UK and Scottish content baseline and roadmap: A report for the Scottish Offshore Wind Energy Council. Available at: https://www.offshorewindscotland.org.uk/media/11937/bvga-local-content-roadmap.pdf

Figure 5.2 Capital Components by Estimated Cost (Nominal)



5.2.2 Operational Expenditure

The activity during the operations and maintenance phase of the development is expected to be typical for an offshore Windfarm. It is acknowledged that the maintenance programme for a floating offshore Windfarm is likely to be very similar to a fixed offshore Windfarm. Based on this, it was estimated that the average annual expenditure on operations and maintenance will be around £6 million (2023 prices).

Operational expenditure was further split between spending associated with the Windfarm's operations and its maintenance, as shown in Table 5.1.

Table 5.1 OPEX Components by Value

OPEX Components	Share of Contracts	Annual Value (£m)
Operations	13%	1
Maintenance	87%	5
Total Operation and Maintenance Costs	**100%**	**6**

Source: BiGGAR Economics Analysis

5.3 Geographic Split

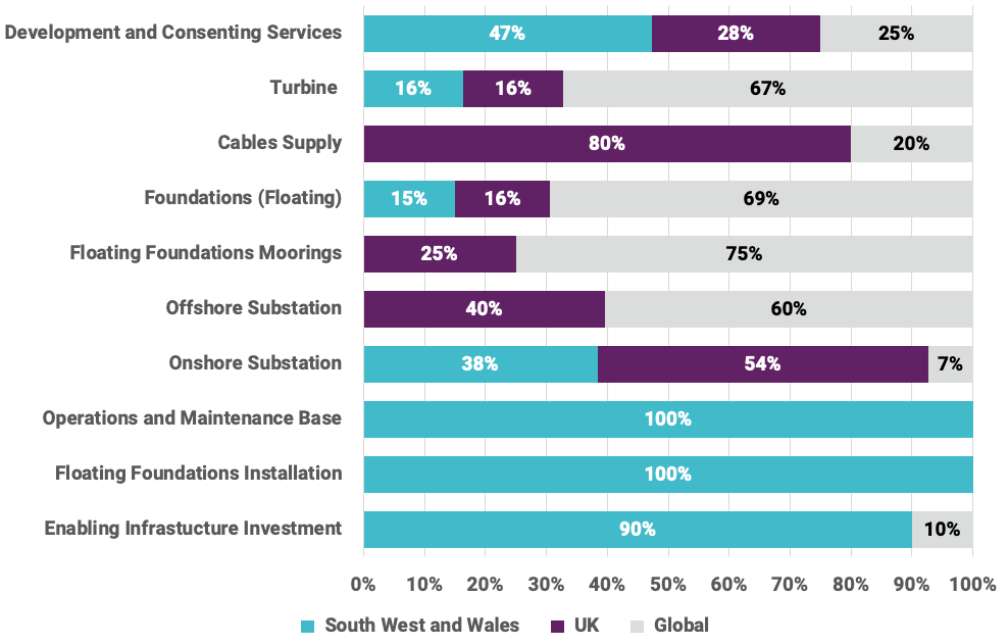
The next stage in estimating the economic impact associated with this development is to consider the likely location of companies that would be awarded these contracts. The process for estimating this was to check the availability and number of suppliers for each sub-product or service in the South West and Wales and in the rest of the UK, based on the following:

- BVG Associates' report on content at Scottish and UK level[6]
- the capacity of companies to deliver the goods or services in each area
- BiGGAR Economics experience of similar offshore wind projects where sub-products or services are identical for bottom-fixed and floating offshore wind.

5.3.1 Capital Investment

In total, the Project will require a capital investment of £540 million. The contract and market analysis estimated that £226 million (42%) is likely to be secured from the UK. This includes £83 million (15%) that is likely to be secured from the South West and Wales. The splits of CAPEX by region and contract category are shown in Figure 5.3.

Figure 5.3 Contract Share by Geographic Area



Source: BiGGAR Economics Assumptions and developer data

[6] BVG Associates (2021). UK and Scottish content baseline and roadmap: A report for the Scottish Offshore Wind Energy Council. Available at: https://www.offshorewindscotland.org.uk/media/11937/bvga-local-content-roadmap.pdf

Around 27% of CAPEX is expected to be secured within the rest of the UK. Outwith the South West and Wales, the largest opportunities for companies in the rest of the UK will be within array cabling, floating foundations and the transmission system.

Turbine contracts will be the largest contract category being secured from companies based outside the UK.

5.3.2 Operational Investment

It is estimated that 77% of the overall operational expenditure will be retained in the South West and Wales and 82% will be retained in the UK.

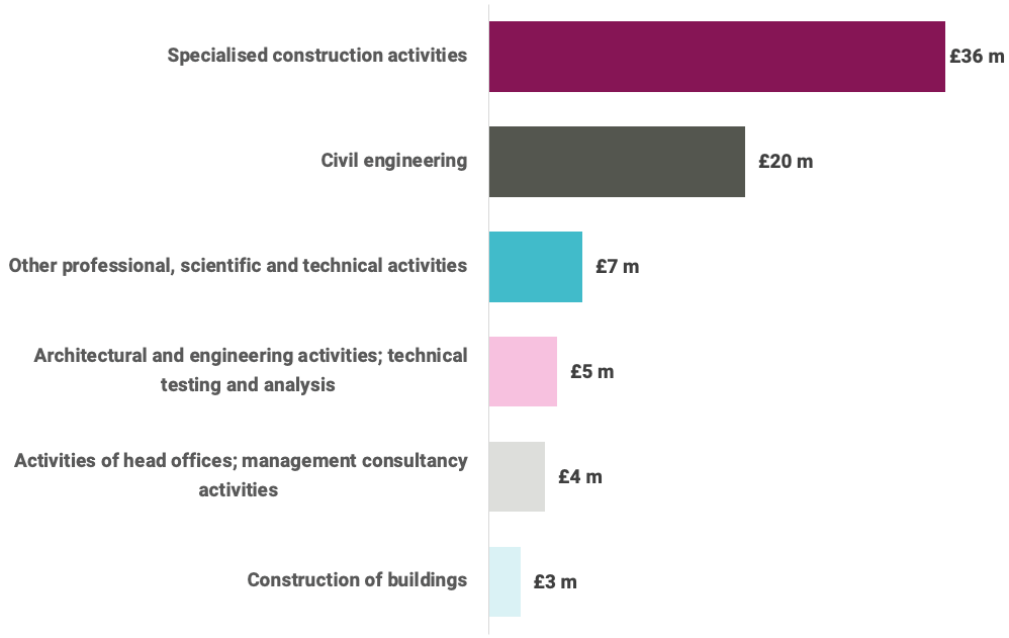
The largest area of economic activity stimulated by the operational expenditure of the project in the South West and Wales will be associated with turbine maintenance, including turbine maintenance and service, and balance of plant maintenance and service. It is estimated that the South West and Wales could secure contracts with an average value of around £4 million each year for the maintenance component of operation and maintenance spending.

5.4 Estimating the Economic Impact

The contract values potentially awarded in each region would represent an increase in turnover of businesses in these regions.

The industries that would benefit during the capital investment stage are typically those in the manufacturing and construction sectors. In particular, the sector in the South West and Wales that is expected to see the largest value contracts will be specialised construction activities, which is estimated to be awarded contracts with a value of £36 million during the development and construction of White Cross Offshore Windfarm. This is followed by civil engineering firms which are estimated to be awarded contracts with a value of £20 million. The top five industries for expected contract opportunities in the South West and Wales are shown in Figure 5.4.

Figure 5.4 Project Turnover by Industry of Supplier in the South West and Wales, Top 5

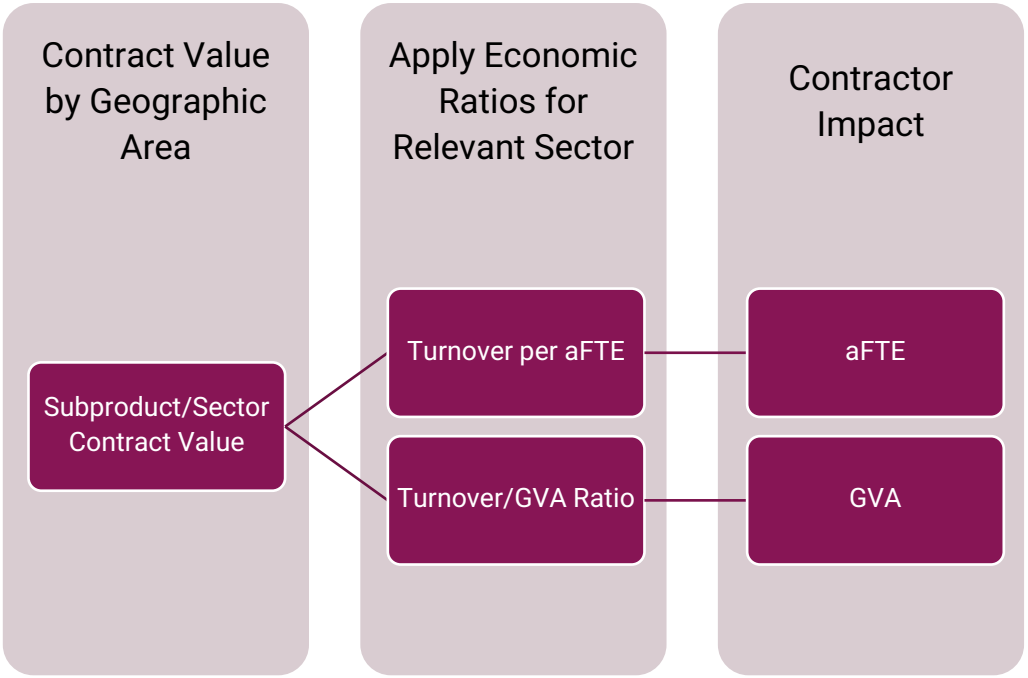


Source: BiGGAR Economics Analysis

The Annual Business Survey (ABS)[7] provides the turnover/ GVA ratio for each section of the economy. This data is used to estimate the direct GVA impact from any increase in turnover from all of the relevant industries. Similarly, the same data source can be used to estimate the employment that this increase in turnover would support. The ABS provides data on the headcount employment in each sector, this was converted to Full Time Equivalents (FTEs) using sector matched data from the Annual Survey of Hours and Earnings[8]. This calculation was based on real prices, as the survey data is based on turnover per aFTE in 2020 prices.

[7] Office of National Statistics (2022) Annual Business Survey 2020
[8] Office of National Statistics (2022) Annual Survey of Hours and Earnings

Figure 5.5 Direct Contractor Impact Process



On this basis it was estimated that the initial contracts awarded for development and construction of White Cross Offshore Windfarm would directly support 520 aFTEs in the South West and Wales and a further 860 aFTEs across the rest of the UK. Within the South West and Wales, the largest element would be manufacturing and fabrication, which would support 290 aFTEs in the South West and Wales.

Table 5.2 Employment Impacts in Directly Contracted Companies (aFTEs)

	South West and Wales	UK
Capital Expenditure		
Development	190	80
Manufacturing & Fabrication	290	690
Installation	40	90
Total CAPEX	**520**	**860**
Operational Expenditure		
Annual OPEX	20	0
Lifetime OPEX	**500**	**0**

The Gross Value Added from the initial contracts would be £34 million in the South West and Wales. During the construction phase, the average GVA per FTE in the South West and Wales would be approximately £64,600 (in current prices). In conclusion, this means that the average job created by White Cross Offshore Windfarm would be a rather well-paid 'good' job.

Table 5.3 Directly Contracted Impact - GVA (£m)

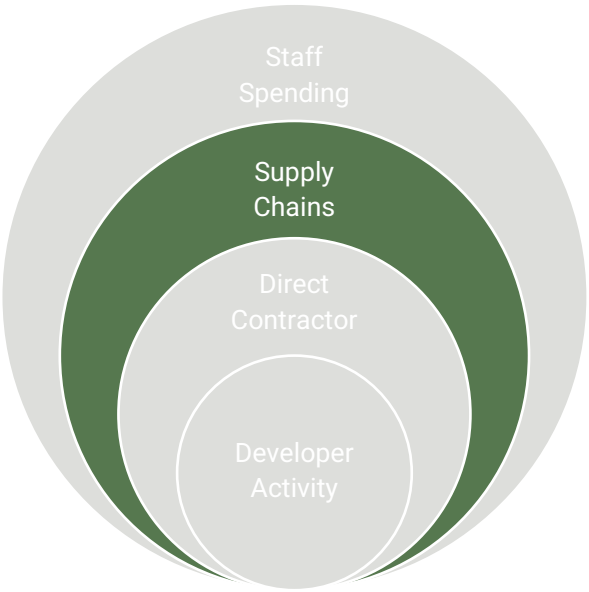
	South West and Wales	UK
Capital Expenditure		
Development	13	5
Manufacturing & Fabrication	17	45
Installation	3	5
Total CAPEX	**34**	**55**
Operational Expenditure		
Annual OPEX	2	0
Lifetime OPEX	**42**	**2**

Note: Totals may not add up due to rounding.

5.5 Estimating the Wider Supply Chain Impacts

There would also be knock on effects in the supply chain. This includes the components of the supply chain that would work closely with the main contractor, such as subcontractors that would also be based on the construction yard, and also components of the supply chain which are further afield, such as the companies which provide the raw materials, the tools, and professional services that the main contractors rely on.

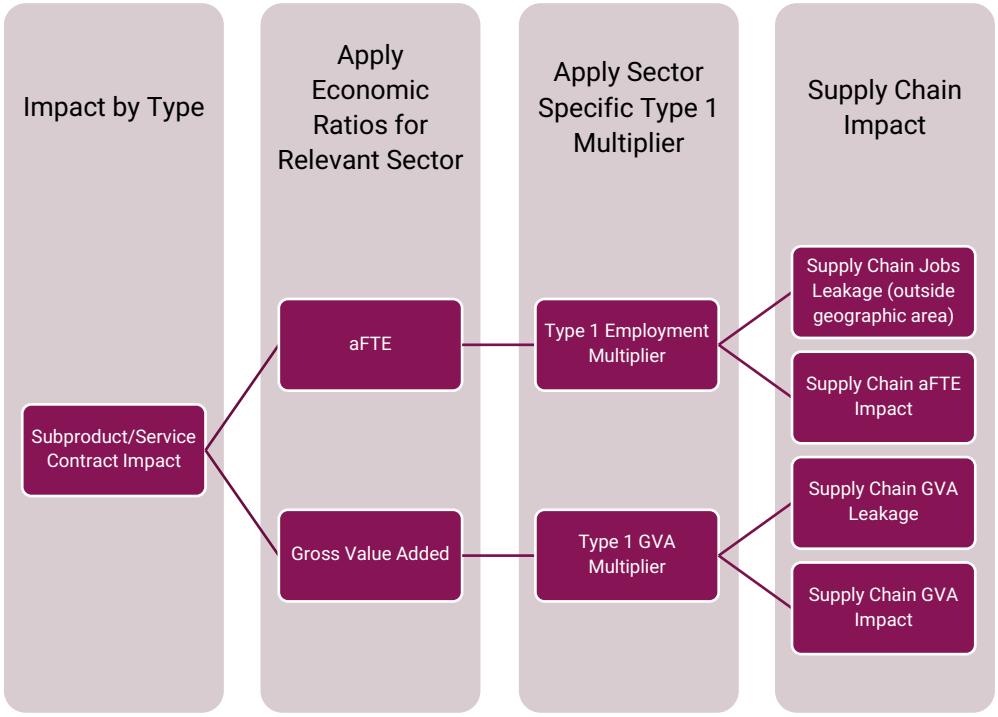
Figure 5.6 Stages of Economic Impact Assessment: Supply Chain Impact



To estimate what the impact from this further round of spending would be, it is necessary to use Type 1 multiplier which are calculated based on the UK[9] Input Output tables and are specific for each sector. These multipliers calculate which components of the supply chain of a particular sector are procured from within the UK. In this way it is possible to consider the likely level of value generated outwith each study area (leakage) within each supply chain and exclude that from the analysis[10].

An overview of the process for calculating this impact is shown in Figure 5.7. This process considers that there can be a significant proportion of the supply chain which is external to each geographic area. Unless data is known for a specific company that could be included in the supply chain, it is assumed that the supply chain of the companies that are involved in these contracts would be similar to the sector they are in. For example, the UK Input Output tables find that 66% of the supply chain across all components of the UK manufacturing of electrical equipment is from UK companies[11]. The UK manufacturing of electrical equipment sector imports 34% of its supplies from the rest of the world. This would be considered leakage when calculating the impact in the UK.

Figure 5.7 Supply Chain Impact Process



This analysis was done for each subproduct/service and for each geographic area. The Type 1 multipliers that were used were those of the corresponding relevant sector. As there are no regional Type 1 multipliers covering the South West and

[9] ONS (2022) UK Input-Output Analytical Tables
[10] This would include for example, the typical share of imports within an industry's supply chain.
[11] The manufacturing sector in Scotland covers many sub-sectors. For this analysis, the values for the more specific subsectors are applied.

Wales, it was assumed that the size of indirect impacts would be half that across the UK economy.

On this basis, it was estimated that the supply chain for the initial contracts awarded for development and construction of White Cross Offshore Windfarm would directly support a further 320 aFTEs in the South West and Wales and 1,020 aFTEs across the rest of the UK. Rest of UK companies account for a significant proportion of the supply chain for companies located in the South West and Wales and therefore the supply chain impact in the rest of the UK is greater than that of the South West and Wales.

Table 5.4 Supply Chain Employment Impacts by Stage and Geographic Area (aFTEs)

	South West and Wales	UK
Capital Expenditure		
Development	90	140
Manufacturing & Fabrication	210	740
Installation	20	140
Total CAPEX	**320**	**1,020**
Operational Expenditure		
Annual OPEX	10	10
Lifetime OPEX	**250**	**250**

During the construction and development stages the Gross Value Added from the supply chain to the initial contracts would be £17 million in the South West and Wales. The supply chain across the rest of the UK would generate a further £64 million GVA. Each year, the wider supply chain in the South West and Wales would also generate an average of £1 million GVA from operational expenditure.

Table 5.5 Supply Chain GVA Impacts by Stage and Geographic Area (£m)

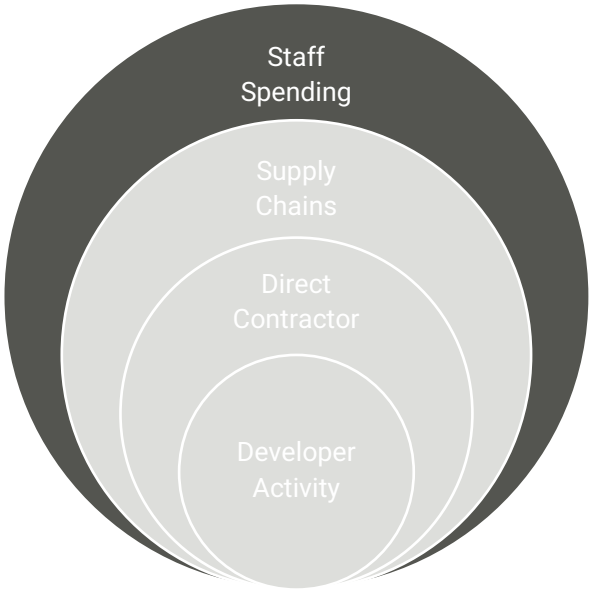
	South West and Wales	UK
Capital Expenditure		
Development	6	10
Manufacturing & Fabrication	10	47
Installation	1	7
Total CAPEX	**17**	**64**
Operational Expenditure		
Annual OPEX	1	1
Lifetime OPEX	**19**	**22**

Note: Totals may not add up due to rounding.

5.6 Induced Economic Impacts

In addition to the impacts associated with the direct contractors and their supply chains, the staff employed in these companies will have an impact on the economy through the spending of their wages. This is the induced impact, and although it is not considered when assessing the scale of impacts in the ES, they are included in this analysis to give a full picture of the economic impacts of White Cross Offshore Windfarm. The induced impact can be particularly important in rural communities, where the success of small rural businesses can be heavily dependent on the spending of local workers.

Figure 5.8 Stages of Economic Impact Assessment: Staff Spending Impact



This impact is calculated for each sector of direct impact using the appropriate Type 2 multipliers for that sector. Based on internal analysis of household spending patterns it was assumed that the scale of induced impacts in the South West and Wales would be 70% of those across the UK.

Table 5.6 Induced Impacts by Stage and Geographic Area

	South West and Wales	UK
CAPEX		
GVA (£m)	18	52
Jobs (aFTEs)	300	790
Annual OPEX		
GVA (£m)	1	0
Jobs (FTEs)	10	0
Lifetime Impact		
GVA (£m)	23	11
Jobs (aFTEs)	250	0

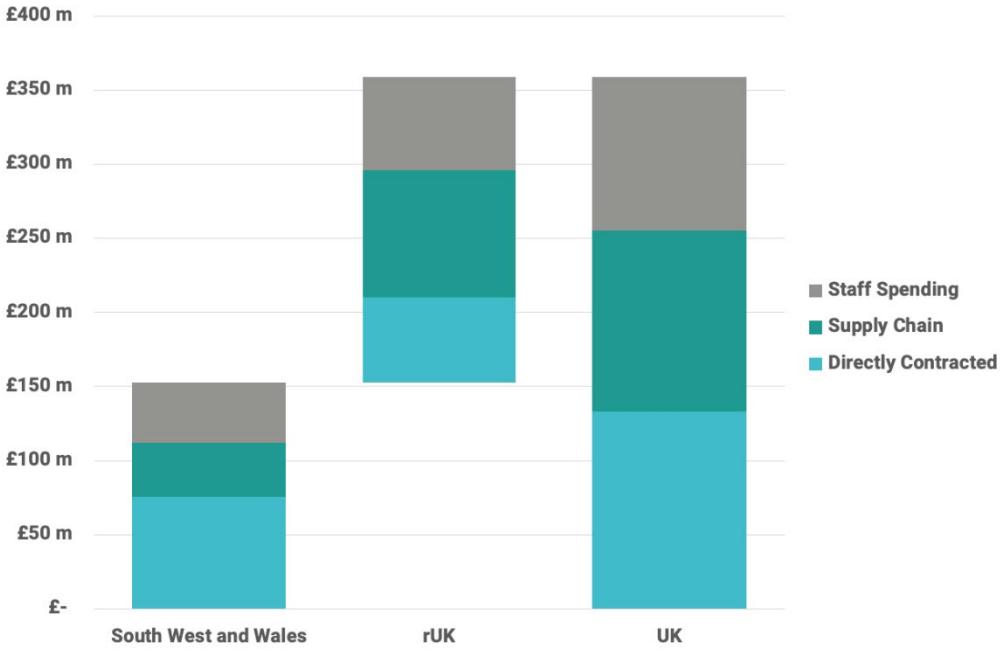
5.7 Total Economic Impacts

5.7.1 Exclusive Impacts

The total economic impact of White Cross Offshore Windfarm is the sum of the direct contractor, supply chain and induced impacts. In total White Cross Offshore Windfarm will generate:

- £153 million GVA in the South West and Wales, with the majority of this with directly contracted companies
- £206 million GVA elsewhere in the UK and the largest component of this will be within the wider supply chain.

Figure 5.9 Exclusive Lifetime Gross Value Added (GVA) by Source and Study Area



In addition, White Cross Offshore Windfarm will also support employment in both the long term and the short term. During the lifetime of the project, it will support:

- 2,140 aFTEs in the South West and Wales
- 2,920 aFTEs elsewhere in the UK.

5.7.2 Inclusive Impacts

The inclusive impacts for each geographic area are given in Table 5.6. This shows that across the UK, White Cross Offshore Windfarm will support £359 million GVA and 5,060 aFTEs.

Table 5.7 Total Economic Impacts by Stage and Geographic Area

	South West and Wales	UK
CAPEX		
GVA (£m)	69	240
Jobs (aFTEs)	1,140	3,810
Annual OPEX		
GVA (£m)	3	5
Jobs (FTEs)	40	50
Lifetime Impact		
GVA (£m)	153	359
Jobs (aFTEs)	2,140	5,060

6. Impacts Over Time

The study period for this assessment goes from 2022 to the early 2050s. The level of economic activity associated with White Cross Offshore Windfarm will vary significantly over time. This section describes how the economic impacts will be distributed over this period.

6.1 Project Timescales

The magnitude of any economic impacts is directly related to the level of expenditure at a given point in time. This will be a long-term Project and to understand the nature of the economic impact it is important to consider the time dimension.

The project plan covers the development phase (2022-2024) construction activity including manufacturing (2024-2027) and the 25 years of operation of White Cross Offshore Windfarm (2028-2053). The assumptions followed in the mapping of economic impacts over time are set out in Table 6.1 and based on discussions with the developers.

Table 6.1 White Cross Offshore Windfarm - Timescales

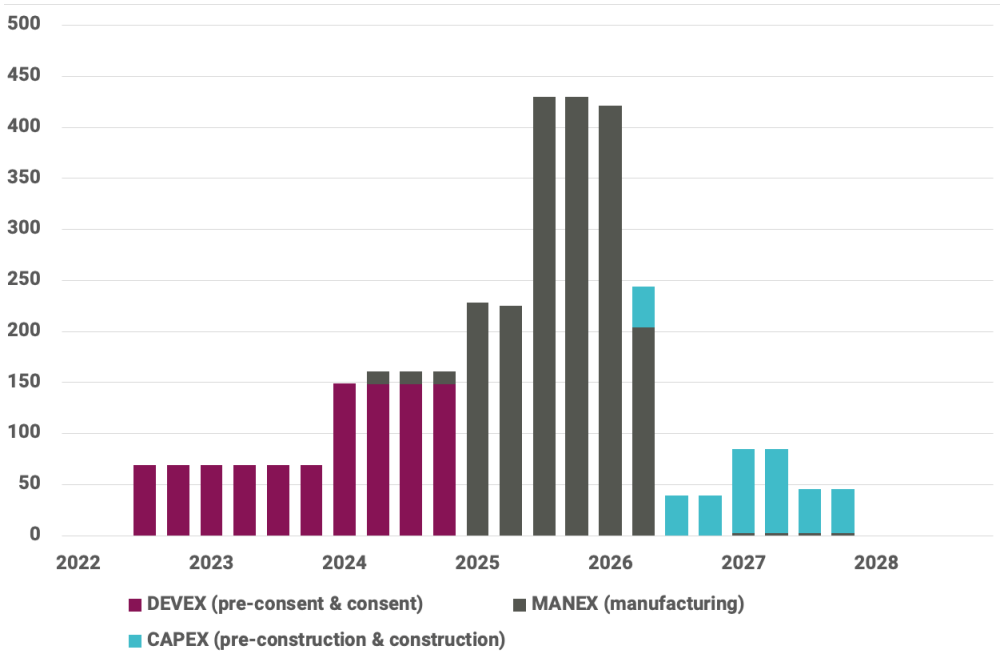
Element	Timescales
Development	2022 (Q2) – 2024 (Q4)
Wind Turbines (including integration)	2024 (Q1) – 2026 (Q2)
Enabling Infrastructure Investment	2024 (Q1) – 2024 (Q4)
Cables Supply	2024 (Q2) – 2026 (Q2)
Floating Foundations	2025 (Q1) – 2026 (Q1)
Offshore Substation	2026 (Q1) – 2026 (Q4)
Floating Foundations Installation	2026 (Q2) – 2027 (Q2)
Floating Foundations Moorings	2026 (Q2) – 2027 (Q3)
Onshore Substation	2027 (Q1) – 2027 (Q4)
Operations and Maintenance Base	2027 (Q1) – 2027 (Q4)
Operations	2028 Q1

For those elements that included the procurement of manufactured products, such as elements of the turbine, the time period was adjusted to reflect the manufacturing time.

6.2 Impact Timescales

The capital investment impact is expected to be spent over a 4-year period, from 2024 to 2028. The economic impacts which are described in Section 4 will be distributed over this time period. This analysis considered how the impact of the directly contracted and supply chain companies was distributed over this time period.

Table 6.2 Development and Construction Jobs over Time, South West and Wales



Source: BiGGAR Economics Analysis

The peaks in employment would occur from Q3 2025, which would see an average of 430 directly contracted and supply chain FTEs supported during the year. This would occur during the construction of the foundations and the enabling project infrastructure.

The operational economic impacts will be long term. It is likely that the actual level of operational expenditure will fluctuate between years however, in this analysis it has been assumed that the level of expenditure, and therefore employment impacts will be constant for each turbine installed.

7. Supply Chain Development and Impact Scenarios

This section considers the activities that the developer will pursue to maximise the economic impacts that are delivered to the South West of England and Wales

7.1 Supply Chain Scenarios

The development of the floating offshore wind sector in the Celtic Sea represents a long term and substantial economic opportunity for the South West of England and Wales.

The potential opportunities for the supply chain in the region have been considered by the Offshore Renewable Energy Catapult (OREC)[12]. This considered the potential for supply chains to develop in time for the deployment of different project types. The properties of each of the of the project types used in the analysis are shown in Table 7.1. The White Cross Offshore Windfarm will have an installed capacity of up to 100 MW, will include up to 8 turbines and the substations will be commissioned in 2026. Therefore, it is assumed that the "PDZ" project is that which is most similar to the White Cross project.

Table 7.1 Project types considered in scenario analysis

Project Description	Wave Hub	PDZ	300MW site	500MW site
Commissioning Year	2023/24	2025/26	2027/28	2029/30
Project Capacity (MW)	32	90	300	500
Turbine Rating (MW)	8	10	12	15
Number of Turbines	4	9	25	33

Source: OREC (2021)

It was considered that the main area of change between the two spending scenarios for the PDZ project would be in the share of development and consenting works that would be secured within the area. A breakdown of the share of spend in each contract area is provided in Table 7.2. This shows that the only difference between

[12] Offshore Renewable Energy Catapult (2021) Supply Chain Report: Benefits of Floating Offshore Wind to Wales and the South West. Available at: https://ore.catapult.org.uk/?orecatapultreports=benefits-of-floating-offshore-wind-to-wales-and-the-south-west-supply-chain-report

the two scenarios is that in the high case, up to 71% of development and consenting works would be secured within the area, compared to 47% in the base case.

Table 7.2 Base and High Case Value of Spend

Element	Base Case Spend	High Case Spend
Development and Consenting	47%	71%
Substructure	11%	11%
Wind Turbine	0%	0%
Anchors	0%	0%
Mooring Lines	0%	0%
Electrical Infrastructure	57%	57%
Ports and Logistics	66%	66%
Vessels and Subsea Engineering	92%	92%
Other CAPEX	30%	30%
Total CAPEX	**32%**	**33%**
OPEX		
O&M Offshore Activities	50%	50%
O&M Onshore Activities	91%	91%
Other OPEX	0%	0%
Total OPEX	**30%**	**30%**
Decommissioning		
Decommissioning	77%	77%

Source: Offshore Renewable Energy Catapult

This would represent a 50% increase in the development and consenting spend that would be secured within Wales and the South West. For White Cross Offshore Windfarm, this would be equivalent to spending £24 million on development and consenting works in Wales and the South West. This is equivalent to £8 million of additional spending during the development period.

As shown in Table 7.3, this additional spending would directly support 60 more aFTEs in Wales and the South West. In total, including the direct and induced employment effects, increasing the share of development and consenting spend from 47% to 71% would support an extra 110 aFTEs across Wales and the South West.

Table 7.3 Employment impacts from increased development and consenting work in Wales and South West

Element	Base Case	High Case	Difference
Direct Jobs (aFTEs)	120	180	60
Indirect Jobs (aFTEs)	40	60	20
Induced Jobs (aFTEs)	80	110	30
Total Jobs (aFTEs)	240	350	110

Source: BIGGAR Economics Calculation

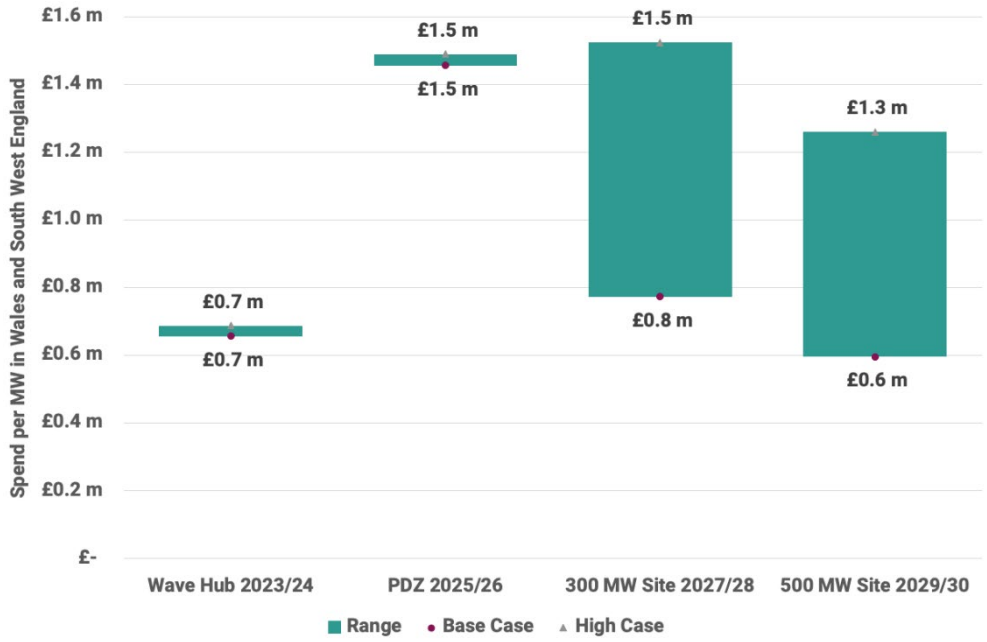
It should be noted that the variation between the base case and the high case increases significantly for larger projects that will be commissioned later in the 2020's. This is because:

- the potential for new suppliers, such as mooring line fabrication, to enter the market is greater over time
- the potential for existing supplier to diversify into providing goods for the floating offshore wind sector, such as array cables, also increases over time
- investment in port facilities could enable substructure manufacturing, rather than just final assembly.

These additional investments, and other smaller scale investments further down the supply chain, would enable Wales and the South West to capture a greater share of the supply chain expenditure. However, it is assumed that for projects that are commissioned in 2026, these investments will not have been made in time to be included in the supply chains.

It is also worth nothing, as shown in Figure 7.1, that the total level of expenditure per MW decreases over time as the projects get larger. This is in line with the expectations of maturation of the floating offshore wind sector, as costs will come down as the sector innovates and benefits from the economies of scale presented by larger projects.

Figure 7.1 Spend per MW in Wales and South West England by project type



Source: Offshore Renewable Energy Catapult

7.2 Supply Chain Development Plan

In line with the supply chain analysis of the South West of England and Wales, the developer is pursuing activities that will aim to maximise the potential for local content in the White Cross Offshore Windfarm development and support companies in the area prepare for the future opportunities linked with the larger Celtic Sea developments that are to come. While the OREC supply chain study focused on the opportunities from the development and consenting contracts, the supply chain engagement of the developer will aim to maximise local content generally, across all contract areas.

This approach will be refined and expanded as the Project develops. It also recognises that supply chain development is not something that can be addressed by an individual developer on its own and recognises the role for wider industry collaboration and the involvement of Tier 1 or other major contractors.

In 2020, the Offshore Wind Industry Council[13] published a strategy for expanding the UK offshore wind supply chain. This built on example of best practice in the industry to date, and also the experiences of other sectors such as onshore wind[14]. This guidance is applicable for both the national supply chain and the opportunities for organisations in Wales and the South West.

[13] Offshore Wind Industry Council (2020) Collaborating for Growth - Playbook
[14] RenewableUK. (2014) Local Supply Chain in Onshore Wind, Good Practice Guide

The offshore wind supply chain in South West and Wales are both supported by active industry groups and collaborative organisations that can support the developer to maximise the local economic impact of the Project. These sector organisations include:

- Cornwall FLOW Accelerator
- Pembrokeshire Demonstration Zone
- Celtic Sea Cluster (OWIC).

The activities that the developer will do to maximise the current and future supply chain opportunities for organisations in the South West and Wales have been grouped into four themes;

- supply chain engagement
- project information
- skills development
- monitoring and evaluation.

7.2.1 Supply Chain Engagement

The developer will engage with the supply chain in Wales and the South West early in the process.

The supply chain engagement, and support of sector organisations, will help the developer to understand the opportunities for local suppliers to participate in the project. It will also help to identify the developer to understand the barriers that local organisations, particularly SMEs face in entering the floating offshore wind supply chain.

The specific actions that the developer will take, include:

- the developer will attend meet the buyer events and networking events, organised through local sector organisation such as the Cornwall FLOW Accelerator. These events can be held prior to any procurement process beginning and the objective of this will be to introduce the developer to the supply chain capabilities that are available in the area and to build up a database of companies that can be invited to participate in the procurement process when it does start
- the developer will run procurement workshops with potential suppliers at the start of the procurement process, organised through local sector organisations, that will highlight its approach to quality and performance within tender assessments
- the developer will actively work to introduce contacts to Tier 1 or other major contractors when these are brought on board to the project. This will either be through direct introductions or through the organisation of further meet the buyer events
- the developer will work with sector organisations to address barriers to entry.

7.2.2 Providing project information early

The developer will provide Project information to potential suppliers as early as possible. This will include details around Project timelines, technical specifications and the procurement process. This early engagement will allow local suppliers to plan and prepare for the potential opportunities.

The early provision of information will also support local sector organisations, such to identify opportunities for collaboration and research. The collaboration can help SMEs to address issues around capacity, that may be identified as a barrier for engaging with the offshore wind supply chain. This research can support local organisations to innovate and become more competitive in any tendering process.

The developer will work with its Tier 1 suppliers to also provide early details of their specific contracts and any opportunities for sub-contracting.

7.2.3 Skills development

Skills development is one of the key areas that will support the development of the supply chain for floating offshore wind in Wales and the South West. Skills development is a sector wide issue and there is often no guarantee that those trained externally will use their new skills on any specific project. Therefore, the majority of the support that the developer will provide on skills development will be through wider sector bodies. However, there are some actions that the developer can take to improve skills development through the White Cross Offshore Windfarm. These include;

- sponsoring apprenticeship programmes in and recruiting for these within the local area
- monitoring and recording the number of apprentices that are involved in the project across all elements of the supply chain
- commit to meeting the target, set by the Offshore Wind Industry Council, of 2.5% of the employed offshore wind workforce being from or on apprenticeship schemes
- providing potential suppliers with a long-term opportunity, to encourage investment in skills to meet this demand
- follow best practice in attracting, retaining and developing skills across a diverse demographic, in line with guidance provided by the Offshore Wind Industry Council[15], and request that major contractors also comply with this guidance.

The developer will work with sector organisation to understand where skills and labour force issues represent a constraint on local supply chain content.

Skills development presents a collective challenge within the sector, as many skills requirements are common across all developers operating in the Celtic Sea. In order to prevent duplicating efforts and ensure that investments in skills development have a maximum impact, a collaborative approach is recommended for developers in the

[15] Offshore Wind Industry Council (2020) Best Practice Guide: Diversity and Inclusion

region, including the developer of White Cross Offshore Windfarm. This collaborative approach entails working alongside schools, colleges, and universities to identify career pathways, develop educational curricula, and offer grants for education. As one of the initial projects advancing in the Celtic Sea, the White Cross Offshore Windfarm developer can contribute to this broader endeavour by raising awareness among learners about emerging opportunities and providing valuable insights regarding skills challenges and prospects to industry groups that are actively supporting skills development.

7.2.4 Monitoring and evaluation

The developer is aware that the White Cross Offshore Windfarm, and other demonstrator sites like it, can act as a catalyst for the development of further offshore wind in the Celtic Sea and can support the local supply chain to enter these markets. It will therefore work with Tier 1 contractors and industry representatives to understand the share of supply chain content that is procured from Wales and the South West. Actions that the developer could take include;

- formalise local content in the Tier 1 tendering process – request that Tier 1 suppliers include an estimate for the proportion of their content which could be spent in Wales or the South West. This does not need to be a scored element of the tender; however, it will encourage Tier 1 companies to consider this at the earliest stages and can be used later in the evaluation process
- formalise the reporting requirements on Tier 1 companies regarding local content, in particular to monitor the level of spend in the local area and highlight any challenges it faced in reaching the targets outlined in the tendering process
- at the end of the construction period, the developer will evaluate the overall level of expenditure in the local area, the impact of this expenditure and the lessons that can be learned for future projects
- work with local sector organisations, such as the OWIC Celtic Sea Cluster and the Cornwall FLOW Accelerator to communicate the findings and lessons of the evaluation to the wider sector.

The purpose of the monitoring and evaluation exercise is not to increase the level of local content for the White Cross Offshore Windfarm, but to increase the share of local content on future floating projects in the Celtic Sea. As shown in Figure 7.1, the larger projects that will be developed in the future represent the greatest potential difference between the high and low case of local content. These projects are also significantly larger and the scale of the economic opportunity is much greater. therefore, actions that the developer can take to maximise the supply chain opportunities for future projects can have a greater impact than those actions which focus solely on the White Cross Floating Offshore Windfarm.

[Ends]

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