# Morecambe Offshore Windfarm: Generation Assets

## Environmental Statement

## Volume 5

## Chapter 20 Socio-economics, Tourism and Recreation

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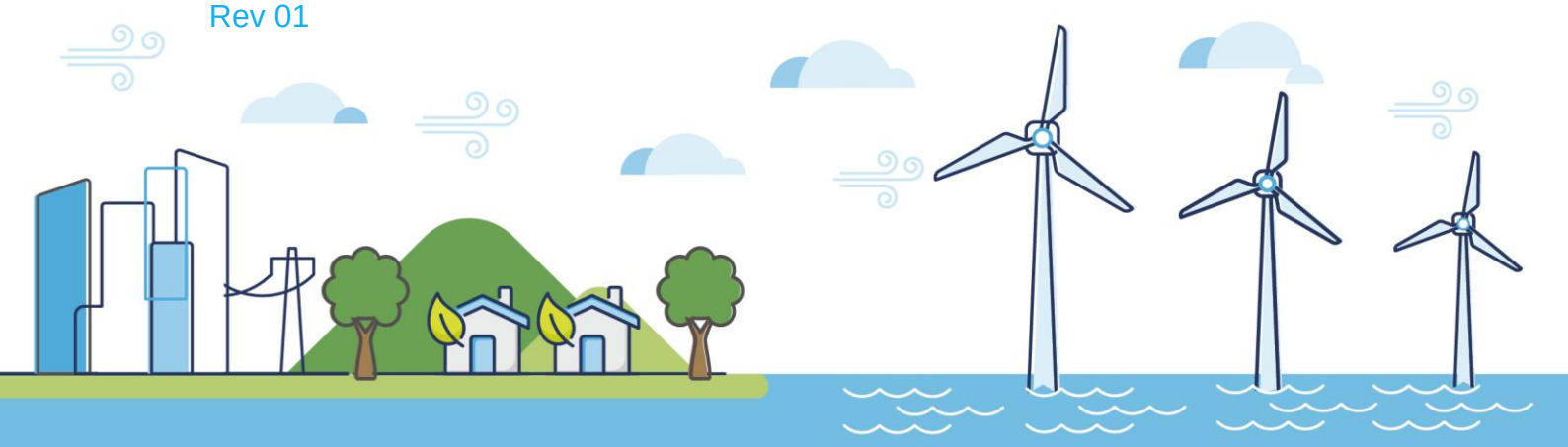

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# Glossary of Acronyms

| | |
|---|---|
| BEIS | Department of Business, Energy and Industrial Strategy[1] |
| Cefas | Centre for the Environment and Fisheries and Aquaculture Science |
| CEA | Cumulative Effects Assessment |
| CfD | Contracts for Difference |
| CLEP | Cumbria Local Enterprise Partnership |
| DCO | Development Consent Order |
| DESNZ | Department for Energy Security and Net Zero |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| FLOWW | Fishing Liaison with Offshore Wind and Wet Renewables |
| GDP | Gross Domestic Product |
| GP | General Practice |
| GVA | Gross Value Added |
| HAT | Highest Astronomical Tide |
| IMF | International Monetary Fund |
| IOMSPC | Isle of Man Steam Packet Company |
| LSE | Likely Significant Effect |
| NVQ | National Vocational Qualification |
| NHS | National Health Service |
| MHWS | Mean High Water Springs |
| MMO | Marine Management Organisation |
| NISRA | Northern Ireland Statistics and Research Agency |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| O&M | Operations and Maintenance |
| ONS | Office for National Statistics |
| OSP | Offshore Substation Platform |
| PDE | Project Design Envelope |
| PEIR | Preliminary Environmental Information Report |
| PINS | Planning Inspectorate |
| SIC | Standard Industrial Classification |

[1] As of February 2023, BEIS is known as the Department for Energy Security and Net Zero (DESNZ).

| | |
|---|---|
| SPCO | The Steam Packet Company |
| SLVIA | Seascape and Landscape Visual Impact Assessment |
| UHB | University Health Board |
| UK | United Kingdom |
| WTG | Wind turbine generator |
| ZoI | Zone of Influence |

# Glossary of Unit Terms

| | |
|---|---|
| GVA | Gross Value Added |
| km | Kilometre |
| kV | Kilovolt |
| m | Metre |
| MW | Megawatts |
| nm | nautical mile |

# Glossary of Terminology

| | |
|---|---|
| Applicant | Morecambe Offshore Windfarm Ltd |
| Direct Impact | Economic impact associated with the activity of primary contractors involved in the development, construction and operations and maintenance of Morecambe Offshore Windfarm. |
| Generation Assets (the Project) | Generation assets associated with the Morecambe Offshore Windfarm. This is infrastructure in connection with electricity production, namely the fixed foundation wind turbine generators (WTGs), inter-array cables, offshore substation platform(s) (OSP(s)) and possible platform link cables to connect OSP(s). |
| Gross Value Added | Measures the contribution to the economy of each individual producer, industry or sector |
| 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 Morecambe Offshore Windfarm. |
| Induced Impact | Economic impact associated with the spending across the economy of those workers involved in the development, construction and operations and maintenance of Morecambe Offshore Windfarm Generation Assets. |
| Inter-array cables | Cables which link the WTGs to each other and the OSP(s). |
| Jobs | A measure of annual employment, used in the context of operations and maintenance jobs. |
| Local Economic Area | The smallest geographic area in which economic impacts are assessed |
| Morgan and Morecambe Offshore Wind Farms: Transmission Assets | The Transmission Assets for the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm. This includes the offshore substation platforms (OSP(s))[2], interconnector cables, Morgan offshore booster station, offshore export cables, landfall site, onshore export cables, onshore substations, 400-kilovolt (kV) cables and associated grid connection infrastructure such as circuit breaker infrastructure.<br>Also referred to in this chapter as the Transmission Assets, for ease of reading. |
| Offshore substation platform(s) (OSP(s)) | A fixed structure located within the windfarm site, containing electrical equipment to aggregate the power from the WTGs and convert it into a more suitable form for export to shore. |

[2] At the time of writing the Environmental Statement (ES), a decision had been taken that the offshore substation platforms (OSP(s)) would remain solely within the Generation Assets application and would not be included within the Development Consent Order (DCO) application for the Transmission Assets. This decision post-dated the Preliminary Environmental Information Report (PEIR) that was prepared for the Transmission Assets. The OSP(s) are still included in the description of the Transmission Assets for the purposes of this ES as the Cumulative Effects Assessment (CEA) carried out in respect of the Generation/Transmission Assets is based on the information available from the Transmission Assets PEIR.

| | |
|---|---|
| Platform link cable | An electrical cable which links one or more OSP(s). |
| Study area | This is an area which is defined for each Environmental Impact Assessment (EIA) topic which includes the windfarm site as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each EIA topic is intended to cover the area within which an effect can be reasonably expected. For this topic, the study areas are based on pre-existing geographies that contain the epicentres of impact. |
| Windfarm site | The area within which the WTGs, inter-array cables, OSP(s) and platform link cables will be present. |
| Wind Turbine Generator (WTG) | A fixed structure located within the windfarm site that converts the kinetic energy of wind into electrical energy. |
| Years of Employment | A measure of temporary employment used in the context of development and construction jobs. For instance, a job lasting for a period of 18 months can be considered as accounting for 1.5 years of employment. |

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20

# The future of renewable energy

A leading developer in Offshore Wind Projects

# 20 Socio-economics, Tourism and Recreation

## 20.1 Introduction

20.1 This chapter of the Environmental Statement (ES) describes the potential impacts of the proposed Morecambe Offshore Windfarm Generation Assets (the Project) on socio-economics, tourism and recreation. This chapter provides an overview of the existing environment, followed by an assessment of the potential impacts and associated mitigation for the construction, operation and maintenance, and decommissioning phases.

20.2 The Project includes the Generation Assets to be located within the windfarm site (wind turbine generators (WTGs), inter-array cables, offshore substation platform(s) (OSP(s)) and possible platform link cables to connect OSP(s). The Environmental Impact Assessment (EIA) of the transmission assets, including offshore export cables to landfall and onshore infrastructure, is part of a separate Development Consent Order (DCO) application as outlined in **Chapter 1 Introduction** (Document Reference 5.1.1).

20.3 This assessment has been undertaken with specific reference to the relevant legislation and guidance, of which the primary sources are the National Policy Statements (NPS). Details of these and the methodology used for the EIA and Cumulative Effects Assessment (CEA) are presented in **Chapter 6 EIA Methodology** (Document Reference 5.1.6) and **Section 20.4** of this chapter.

20.4 This assessment should be read in conjunction with the following linked ES chapters given assessments within these chapters inform this assessment:

- **Chapter 13 Commercial Fisheries** (Document Reference 5.1.13) (effects such as displacement of fishing activity inform this chapter)
- **Chapter 17 Infrastructure and Other Users** (Document Reference 5.1.17) (effects on recreational marine users)
- **Chapter 18 Seascape, Landscape and Visual Impact Assessment (SLVIA)** (Document Reference 5.1.18) (visual impacts that may cause effects on tourism)
- **Chapter 14 Shipping and Navigation** (Document Reference 5.1.14) (effects to operators inform this chapter)

20.5 Inter-relationships with these chapters are further described in **Section 20.9**, noting that while the Transmission Assets are not part of the Project, effects onshore are assessed that are driven from the Generation Assets (which are all offshore). Onshore infrastructure associated with the Transmission Assets are to be assessed as part of a separate application but also considered in a combined assessment in **Section 20.7.3.1**.

20.6 Additional information to support the socio-economics, tourism and recreation assessment includes a methodological statement (**Appendix 20.1 Offshore Windfarm Economic Impact Assessment Methodology**; Document Reference 5.2.20.1) on the approach followed to estimate the economic benefits of the Project.

## 20.2 Consultation

20.7 Consultation regarding socio-economics, tourism and recreation has been undertaken in line with the general process described in **Chapter 6 EIA Methodology**. The key elements undertaken to inform this ES have included Scoping (Scoping Opinion from the Planning Inspectorate (PINS) received on 2nd August 2022; PINS, 2022) and comments received on the Preliminary Environmental Information Report (PEIR) which was published in April 2023 for statutory consultation. Further targeted post-consent consultation is expected as part of the development of a Skills and Employment Plan. An Outline is provided as part of the DCO Application (Document Reference 6.11).

20.8 The feedback received in the Scoping Opinion published by PINS, and stakeholder comments on the PEIR, have been considered in preparing the ES. The key comments pertinent to this chapter are shown in **Table 20.1**, alongside details of how the Project team has had regard to the comments received and how these have been addressed within this chapter.

20.9 The consultation process is described further in **Chapter 6 EIA Methodology.** Full details on the consultation undertaken throughout the EIA process is presented in the Consultation Report (Document Reference 4.1) which is submitted as part of the DCO Application.

*Table 20.1 Consultation responses received in relation to socio-economics, tourism and recreation and how these have been addressed in the ES*

| Consultee | Date | Comment | Response/where addressed in the ES |
|---|---|---|---|
| **Scoping Opinion responses** | | | |
| PINS (ref 3.16.1) | 2nd August 2022 | Consideration of any likely significant effects (LSE) on local accommodation supply during the operation and maintenance and decommissioning phases. | Effects are assessed in **Section 20.6** |
| PINS (ref 3.16.2) | 2nd August 2022 | Potential transboundary effects - It is noted that potential transboundary effects to commercial fishing, shipping and navigation and other users will be considered separately. On this basis, the Inspectorate agrees that this matter can be scoped out of further assessment. | Noted, however effects on the Isle of Man have been included in the transboundary effects assessment for clarity following consultation responses of the PEIR. |
| PINS (ref 3.16.3) | 2nd August 2022 | Consideration of any effects on commercial fisheries if likely to result in LSE. Otherwise, a reasoned justification for why LSE will not take place shall be provided. | Interrelationships with other chapters have been identified throughout the chapter including with commercial fisheries. While there would be cumulative Likely Significant Effects (LSE) on commercial fisheries during construction, the contribution of the Project is low and mitigation has been proposed at a Project level as appropriate. |
| PINS (ref 3.16.4) | 2nd August 2022 | The Applicant should seek to agree the study area and receptors with relevant consultation bodies. The ES should include figures to identify the final study area and location of any static receptors considered in the assessment. | The study area is defined in **Section 20.3.1** and based on best practice. |
| PINS (ref 3.16.5) | 2nd August 2022 | Baseline data to be sufficiently detailed to enable a robust assessment of any LSE on local housing supply. | Baseline data on housing supply are set out in **Section 20.5.7.** |

| Consultee | Date | Comment | Response/where addressed in the ES |
|---|---|---|---|
| PINS (ref 3.16.6) | 2nd August 2022 | Where significant impacts are likely to occur, the assessment shall include consideration of impacts on local housing supply and rental costs from the use of local accommodation by in-migrant construction workers. | Effects are assessed in **Section 20.6.** |
| **Statutory consultation feedback on the PEIR** | | | |
| Isle of Man Government | 2nd June 2023 | Of the three windfarms (Mona, Morgan, Morecambe), the Mona and Morgan arrays seem to represent the biggest economic risk to the Island. This is particularly the case when the multiple windfarm developments are looked at as a whole. This also includes existing windfarms (such as West of Duddon Sands) and the potential for developments within Isle of Man waters. | The cumulative impacts on the Isle of Man are discussed in **Section 20.8**, reflecting the level of contribution of the Project.<br>A comprehensive regional shipping and navigation study has been undertaken considering the Project, Mona Offshore Wind Project, and Morgan Offshore Wind Project Generation Assets (see **Appendix 14.2 Cumulative Regional Navigation Risk Assessment**; Document Reference 5.2.14.2) as well as a Project-alone assessment (**Appendix 14.1 Navigation Risk Assessment**; Document Reference 5.2.14.1) that allows the contribution of the Project to be understood. |
| | 2nd June 2023 | The consultation documents lack sufficient discussion on the economic impacts on the Isle of Man and particularly on significant economic consequences on essential services. | This text was provided as part of the Isle of Man's response to the PEIRs of the Project, Mona Offshore Wind Project and Morgan Offshore Wind Project.<br>As such, some of the comments may not apply directly to the Project. A discussion of any implications on the Isle of Man due to the Project is provided in **Section 20.8**.<br>A comprehensive regional shipping and navigation study has been undertaken considering the Project, Mona Offshore Wind Project, and Morgan Offshore Wind Project Generation Assets (see |
| | 2nd June 2023 | SPCO's comments indicate that the Liverpool services are highly susceptible to disruptions in Spring and Autumn due to weather and the need to avoid the developments. Cancellations during peak travel periods could lead to significant impacts, with limited capacity on alternative sailings. During increased peak periods like TT/MGP, passengers might experience extended delays due to fully booked sailings. This could create | |

| Consultee | Date | Comment | Response/where addressed in the ES |
|---|---|---|---|
| | | logistical challenges in accommodating visitors on the island, with accommodation providers already at capacity.<br>The consultation documents present a generalised view, averaging sailings throughout the year, failing to consider the substantial peaks in traffic during specific periods. Any disruption would disproportionately affect these periods. As with residents, visitors to the island would also face additional economic costs, although the exact quantity is unknown. Consequently, this could make the Isle of Man a less attractive destination for visitors to some extent. | **Appendix 14.2**) as well as a Project-alone assessment (**Appendix 14.1**) that allows the contribution of the Project to be understood. |
| | 2nd June 2023 | As a small island nation, the Isle of Man is heavily relying on imported goods, including time-critical deliveries such as food, medical supplies and construction materials. Disruptions to these lifeline goods can have broad societal impacts.<br><br>The Isle of Man's competitive disadvantage in transit times for goods would worsen with an increase in delays and cancellations. The Steam Packet Company (SPCO) is the primary sea freight provider, and disruptions to their service would have a greater impact compared to routes with alternative options. The ferry service operates on a tight schedule so even minor increases in transit time could result in more cancellations. Overall, the economic and social well-being of the island is closely tied to the reliability of SPCO's operations. | This text was provided as part of the Isle of Man's response to the PEIRs of the Project, Mona Offshore Wind Project and Morgan Offshore Wind Project Generation Assets.<br>As such, some of the comments may not directly apply to the Project. A discussion of any implications on the Isle of Man due to the Project is provided in **Section 20.8**<br>Health impacts (medical supplies) have been considered in **Chapter 19 Human Health**. |

| Consultee | Date | Comment | Response/where addressed in the ES |
|---|---|---|---|
| | 2nd June 2023 | The developments, especially when combined, can negatively impact journey times, resulting in economic costs for the Isle of Man residents travelling by sea. The adverse effects would be intensified if there are longer delays or cancellations due to developments. These additional economic costs reduce the attractiveness of the island as a place to live and work, although it is challenging to quantify this impact precisely. | This text was provided as part of the Isle of Man's response to the PEIRs of the Project, Mona Offshore Wind Project and Morgan Offshore Wind Project.<br>As such, some of the comments may not directly apply to the Project. A discussion of any implications on the Isle of Man due to the Project is provided in **Section 20.8**. |
| Cumbria Local Enterprise Partnership (CLEP) | 2nd June 2023 | In summary, CLEP are supportive of all of the Morgan, Mona and Morecambe developments as significant contributions to the UK clean energy generation capacity and for economic development in Cumbria and the north-west region. We look forward to future engagement with the project team particularly in seeking opportunities for Cumbria businesses in construction and for the longer-term O&M phase to build on the growing skills and capability in the Barrow area. | A Skills and Employment Plan and planning for the Project's supply chain are being developed and further consultation upon these is expected as the Project design (and port(s) selection) progresses post-consent. An Outline (Document Reference 6.11) has been provided as part of the DCO Application. |
| Westmorland and Furness Council | 2nd June 2023 | Socio-economic Impact<br>The potential socio-economic impacts of the proposals that have been scoped into the Preliminary Environmental Information Report (PEIR) are:<br>▪ The impact on economic receptors including employment, GVA, and supply chain demand<br>▪ The impact of increased employment opportunities<br>▪ The impact on the demand for housing, accommodation and local services<br>▪ The impact on tourism and recreation | A Skills and Employment Plan and planning for the Project's supply chain are being developed and further consultation upon these is expected as the Project design (and port(s) selection) progresses post-consent. An Outline (Document Reference 6.11) has been provided as part of the DCO Application. |

| Consultee | Date | Comment | Response/where addressed in the ES |
|---|---|---|---|
| | | The socio-economic regional study areas have been linked to the selection of potential construction, operations and maintenance, and decommissioning ports that could support the proposal. The Council strongly supports the use of Barrow Port as it is ideally located and equipped to support the proposals.<br>Barrow Port is already a significant offshore wind supply base, especially with operations and maintenance, which could be increased. Relevant local experience, expertise, skills, training and access to supply chains already exist, and these could be further developed to support the project, whilst delivering socio-economic benefits for the area.<br>Sustainability is key in ensuring positive, long term socio-economic impacts are delivered and the full benefits realised. Capacity would need to be carefully considered and planned, with any required investment in infrastructure identified and secured early. A key area of focus should be the approach to utilising local assets, resource, and facilities. The overarching approach should be to ensure positive socio-economic impacts are anchored locally to support long term improvements. | |
| Stena Line | 2nd June 2023 | Stena Line states that it will provide additional comments regarding the Morecambe Transmission Assets. However, it cannot offer substantial input on any potential socio-economic impacts that might affect its operations until further information is available. | It is noted that since PEIR further consultation on the Project boundary has been undertaken, with information presented in **Chapter 14 Shipping and Navigation**. **Appendix 14.2** provides a regional assessment including the Transmission Assets and Generation Assets as well as other projects in the region. The Transmission Assets are subject to a separate DCO Application. |

| Consultee | Date | Comment | Response/where addressed in the ES |
|---|---|---|---|
| Isle of Man Steam Packet Company (IoMSPC) | 2nd June 2023 | Consultation responses are provided and addressed in **Chapter 14 Shipping and Navigation** and within the Consultation Report (Document Reference 4.1). | |

## 20.3 Scope

### 20.3.1 Study area

20.10 The windfarm site (encompassing all Project infrastructure) is located in the Eastern Irish Sea and encompasses a seabed area of 87km$^2$. The nearest point from the windfarm site to shore (coast of north west England) is approximately 30km.

20.11 The choice of the study areas considered in the assessment was based on BiGGAR Economics' guidance on the definition of Local Economic Areas in the context of offshore renewable projects', as drafted on behalf of Marine Scotland (Scottish Government, 2022a). The process provides a set of principles that can be applied to projects across the United Kingdom (UK).

20.12 The guidance outlined six principles for the identification of Local Economic Areas through a consultation programme and case study analysis. These can be used to define Local Economic Areas based on pre-existing geographies that contain the epicentres of impact. The principles are:

- Principle 1 (Dual Geographies) - The Local Economic Area for the supply chain and investment impacts should be separate from the Local Economic 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 Economic Areas
- Principle 3 (Epicentres) - The Local Economic Areas should include all the epicentres of the appropriate impacts
- Principle 4 (Accountability) - The Local Economic 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 Economic Areas should be defined in such a way that they are understandable to the communities they describe
- Principle 6 (Connected Geography) - The Local Economic Area for the supply chain and investment impacts should consist of connected (including coastal) pre-existing economic or political geographies

20.13 The Project Scoping Report (Morecambe Offshore Windfarm Ltd, 2022) outlines the appropriate impacts included in this assessment which are focused on three epicentres of impact:

- Construction port(s)
- Operations and maintenance port
- Potential effects experienced by other sea users and local communities

20.14 The potential primary construction ports have not been identified at this stage and a range of UK and international ports are likely to be used by different contractors over the construction period. Therefore, this has been excluded from the assessment of the Local Economic Area. It is assumed that these ports would be within the UK and therefore the socio-economic activities are captured within the UK study area.

20.15 The primary operation and maintenance port has also not been identified at this stage. However, for operational reasons, it is assumed that this port would be based within a 50km radius of the windfarm site to allow easy and quick access. It is also assumed that this port would be in the UK, and would not be located in the Isle of Man.

20.16 The potential worst-case visibility of the Project WTGs, considering the largest WTGs under consideration, has also been set to a radius of 50km. Assessments of other offshore wind energy projects in the UK, such as the SLVIA for East Anglia TWO, have found that visibility over 50km was only theoretically possible 9% of the time, once accounting for prevailing weather conditions (White Consultants, 2020). On this basis, they have agreed that effects beyond 50km could be scoped out of any assessment (White Consultants, 2020). It is noted that the Seascape and Landscape and Visual Impact Assessment (**Chapter 18 SLVIA**) extends to 60km, with visual effects limited at this distance.

20.17 Local Authority areas have been used as the primary components of the study area to ensure that these geographies are understandable to the communities within them and there is representation and accountability at this level.

20.18 Based on these principles, the following study areas have been defined for the purposes of this chapter:

- The **Local Economic Area**, defined as the following local authorities (noting that for some impacts e.g. tourism, have been assessed at a more focused receptor level):
  - Liverpool
  - Halton
  - Sefton

- Wirral
- Copeland[3]
- South Lakeland[4]
- Barrow-in-Furness
- Blackpool
- Fylde
- Lancaster
- West Lancashire
- Wyre
- Cheshire West and Chester
- Denbighshire
- Flintshire

- The **UK**

20.19 Given the scale of the Project and the economic opportunity it underpins, impacts are also considered with reference to the UK economy as a whole.

20.20 The study areas for socio-economics, tourism and recreation are shown in **Plate 20.1.** As the Isle of Man is not part of the UK, impacts are addressed in transboundary impacts in **Section 20.8**.

[3] Copeland Borough Council is now part of Cumberland Council.

[4] Barrow in Furness and South Lakeland are now part of Westmorland and Furness Council.

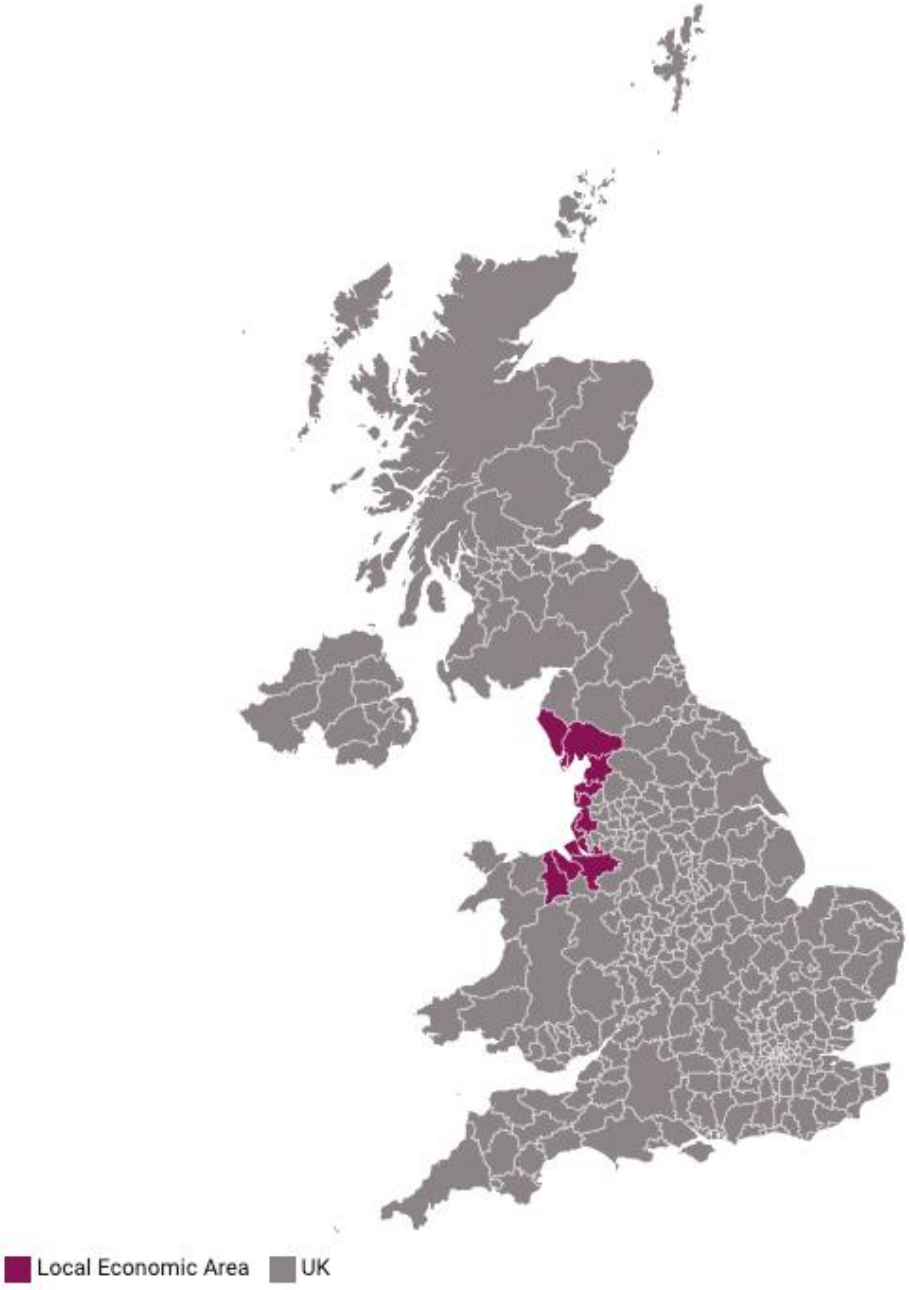


*Plate 20.1 Study areas for socio-economics, tourism and recreation*

### 20.3.2 Realistic worst-case scenario

20.21 The final design of the Project would be confirmed through detailed engineering design studies that would be undertaken post-consent to enable the commencement of construction. To provide a precautionary, but robust impact assessment at this stage of the development process, realistic worst-case scenarios have been defined. 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 would have less or the same impact. Further details are provided in **Chapter 6 EIA Methodology**. This approach is common practice for developments of this nature, as set out in PINS Advice Note Nine: Rochdale Envelope (PINS, 2018).

20.22 The realistic worst-case scenarios for the socio-economics, tourism and recreation assessment are summarised in **Table 20.2**. These are based on the PDE described in **Chapter 5 Project Description**, which provides further details regarding specific activities and their durations. The envelope presented has been refined as much as possible between PEIR and ES, presenting a project description with design flexibility only where it is needed.

*Table 20.2 Worst-case scenarios for socio economics, tourism and recreation*

| Impact | Worst-case scenario | Notes and rationale |
|---|---|---|
| **Construction phase** | | |
| Impact 1: Direct and indirect Gross Value Added (GVA) generated during the development and construction of the Project within the Local Economic Area and the UK. | Conservative assumptions have been made with regard to the ability of businesses in the Local Economic Area to deliver contracts for the Project.<br>The worst-case scenario is based on use of the maximum number (30) of the largest WTGs (310m above Highest Astronomical Tide (HAT)) and two OSPs given the fabrication of WTGs may be outside of the UK.<br>It is considered that the workforce would be a multinational workforce, and vessel personnel and technical specialists may not be UK based citizens or residents. | An economic impact model has been used to estimate the GVA generated during the development and construction phase.<br>The extent of benefits secured in each study area would depend on port choice and on the ability of local businesses to secure contracts. |
| Impact 2: Direct and indirect employment (years of employment) associated with the development and construction of the Project within the Local Economic Area and the UK<br><br>Impact 3: Indirect effects on community assets | | An economic impact model has been used to estimate the employment generated during the development and construction phase.<br>The extent of benefits would depend on port choice and on the ability of businesses in the Local Economic Area to secure contracts. |
| Impact 4: Impacts on the local tourism sector associated with the Project<br><br>Impact 5: Impacts to recreation activities | Tourism and recreation impacts are determined by significant environmental effects identified in other chapters, therefore the design parameters that determine these impacts would vary depending on which environmental effect, such as visual impact, is driving the impacts on tourism and recreation assets.<br>For visual impacts, the worst-case scenario (as shown in **Chapter 18 SLVIA**) is 30 of the largest WTGs and also considers the largest number (35) of the smallest WTGs (and two OSPs).<br>The worst-case scenario is based on WTGs located around the perimeter of the 87km$^2$ windfarm site boundary. | The assessment considers whether any temporary activity during construction would affect tourism activity. |

| Impact | Worst-case scenario | Notes and rationale |
|---|---|---|
| **Operations and maintenance phase** | | |
| Impact 1: Annual direct and indirect GVA generated during the operations and maintenance of the Project within the Local Economic Area and the UK. | It is assumed that the operations and maintenance base would be located within the Local Economic Area and this would stimulate economic activity directly and in the supply chain. However, conservative assumptions have been made with regard to the ability of businesses in the Local Economic Area to deliver specialist contracts for the project.<br>The worst-case scenario is based on the largest WTGs (310m above HAT).<br>It is considered that port workers would largely reside within a commutable distance from the port. | An economic impact model has been used to estimate the GVA generated during the operations and maintenance phase. |
| Impact 2: Annual employment (direct and indirect) supported by the operations and maintenance of the Project within the Local Economic Area and the UK<br><br>Impact 3: Indirect effects on community assets | | An economic impact model has been used to estimate the employment generated during the operations and maintenance phase. |
| Impact 4: Impacts on the local tourism sector associated with the Project<br><br>Impact 5: Impacts to recreation activities | Tourism and recreation Impacts are determined by significant environmental effects identified in other chapters, therefore the design parameters that determine these impacts would vary depending on which environmental effect, such as visual impact, is driving the impacts on tourism and recreation assets. For visual impacts, the worst-case scenario (as shown in **Chapter 18 SLVIA**) is 30 of the largest WTGs and also considers the largest number (35) of the smallest WTGs (and 2 OSPs).<br><br>The worst-case scenario is based on WTGs located around the perimeter of the 87km$^2$ windfarm site boundary. | The assessment considers whether any changes recorded as part of the SLVIA (**Chapter 18 SLVIA**) would have an impact on the tourism economy of the Local Economic Area. |

| Impact | Worst-case scenario | Notes and rationale |
|---|---|---|
| **Decommissioning phase** | | |
| To date, there is limited evidence on the economic impacts associated with the decommissioning of offshore windfarms. In addition, the evidence available is from developments that are not comparable in scale to the Project. More clarity on the process underpinning the decommissioning phase would be set out within the Decommissioning Programme.<br>For these reasons, impacts on decommissioning have been based on several assumptions, including:<br>▪ Decommissioning works happen in reverse to construction<br>▪ The same type and number of vessels as for construction would be required<br>▪ Impacts are likely to be similar in scale to those associated with the construction of the Project<br>The assessment of all impacts during the decommissioning phase has been based on a worst-case scenario as per construction. The scale of economic impacts, however, is expected to be smaller once accounting for social time preference discounting, as suggested in His Majesty Treasury's Green Book (UK Government, 2022).<br>Since the decommissioning phase would take place after a 35-year operational period, there is a degree of uncertainty as to the available technology and processes involved. Similarly, the future socio-economic and tourism conditions upon which decommissioning would impact are uncertain. | | |

### 20.3.3 Summary of mitigation embedded in the design

20.23 Since many of the receptors considered with respect to socio-economics relate to other topics, mitigation is set out in these chapters. This includes:

- **Chapter 13 Commercial Fisheries** (for example liaison with the fishing industry)
- **Chapter 17 Infrastructure and Other Users** (for example separation distances between Project WTGs and oil and gas infrastructure)
- **Chapter 18 SLVIA** (for example the location of the Project)
- **Chapter 14 Shipping and Navigation** (for example vessel traffic management plans)

20.24 The Applicant would also seek to maximise the local benefits associated with the development, construction, operation and maintenance, and decommissioning of the Project through its procurement process.

## 20.4 Impact assessment methodology

### 20.4.1 Policy, legislation and guidance

#### 20.4.1.1 National Policy Statements

20.25 The assessment of potential effects on socio-economics, tourism and recreation has been made with specific reference to the relevant National Policy Statements (NPS). These are the principal decision-making documents for Nationally Significant Infrastructure Projects (NSIPs). Those relevant to the Project are:

- Overarching NPS for Energy (EN-1) (Department for Energy Security and Net Zero (DESNZ), 2023a)
- NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2023b)

20.26 The specific assessment requirements for socio-economics, tourism and recreation, as detailed in the NPS', are summarised in **Table 20.3** together with an indication of the section of the ES chapter where each is addressed.

20.27 For more details on the economic impact methodology used to quantify the potential economic impacts, please refer to the methodological statement (**Appendix 20.1**). This appendix outlines the approach taken to deriving contract values and the subsequent GVA and employment opportunities that would be supported by these contracts in each of the study areas.

*Table 20.3 NPS assessment requirements*

| NPS requirement | NPS reference | ES reference |
|---|---|---|
| **NPS for Energy (EN-1)** | | |
| Where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the ES. | Paragraph 5.13.2 | This chapter considers the impacts on socio-economics and tourism from the construction, operations and maintenance and decommissioning of the Project.<br>The Local Economic Area used in the economic assessment includes regions of North West England and Wales. Considerations of impacts on the tourism economy and assets are considered at a more local level. |
| The applicant is strongly encouraged to engage with relevant local authorities during early stages of project development so that the applicant can gain a better understanding of local or regional issues and opportunities. | Paragraph 5.13.3 | Stakeholder engagement has been undertaken for socio-economics with relevant local authorities throughout the pre-application stage, noting that the Project is entirely offshore.<br>See the Consultation Report for more information (Document Reference 4.1). |
| The assessment should include the creation of jobs and training opportunities. Applicants may wish to provide information on the sustainability of the jobs created, including where they will help to develop the skills needed for the UK's transition to Net Zero. | Paragraph 5.13.4 | Impacts on employment are considered in **Sections 20.6.2.4** and **20.6.3.1**.<br>Sustainability of jobs is considered alongside the impact on employment from the Project in **Section 20.6** and **Section 20.7.**<br>The Applicant is also developing a Skills and Employment Plan to identify opportunities for skills development. An Outline has been provided as part of the DCO Application (Document Reference 6.11). |
| The assessment should consider the contribution to the development of low-carbon industries at the local and regional level as well as nationally. | Paragraph 5.13.4 | The contribution to the development of low-carbon industries is considered in **Section 20.6.2** and **20.6.3**. The key port locations have not been determined at this stage and socio-economic impacts have been assessed at the level of the Local Economic Area, which covers multiple local authorities in the North West of England and Wales. |

| NPS requirement | NPS reference | ES reference |
|---|---|---|
| | | Tourism and recreation impacts have been assessed at a more local level. |
| The assessment should include the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities. | Paragraph 5.13.4 | The Applicant is developing a Skills and Employment Plan to identify opportunities for skills development, with an Outline provided as part of the DCO Application (Document Reference 6.11). |
| The assessment should consider any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to the use of local support services and supply chains. | Paragraph 5.13.4 | The impacts on GVA and employment include indirect/supply chain impacts, as considered in **Section 20.6** and **Section 20.7** |
| The assessment should include effects on tourism. | Paragraph 5.13.4 | Effects on tourism are considered in **Sections 20.6.2.6, 20.6.3.3**. and **20.6.4**. |
| The assessment should include the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. | Paragraph 5.13.4 | Assumptions around the workforce have been made and are assessed in **Section 20.6**. |
| The assessment should include cumulative effects. | Paragraph 5.13.4 | Cumulative effects are considered in **Section 20.7.3**. |
| Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development's socio-economic impacts correlate with local planning policies. | Paragraph 5.13.5 | A baseline of existing socio-economic conditions and tourism activity is provided in **Section 20.5**. |
| Socio-economic impacts may be linked to other impacts, for example visual impacts considered in Section 5.10 but may also have an impact on tourism and local businesses. Applicants are encouraged, where possible, to demonstrate that local suppliers have been considered in any supply chain. | Paragraph 5.13.6 | Links with other impacts are considered in **Section 20.9**.<br>Discussion of how the Applicant intends to maximise economic benefits is provided throughout the chapter. |

| NPS requirement | NPS reference | ES reference |
|---|---|---|
| Applicants should consider developing accommodation strategies where appropriate, especially during construction and decommissioning phases, that would include for the need to provide temporary accommodation for construction workers if required. | Paragraph 5.13.7 | The demand for accommodation would be determined by the level of employment which is supported at each phase. This is considered in **Section 20.6** and **Section 20.7**. Given workforce assumptions, it is not expected that significant impacts to accommodation would occur. |
| **NPS for Renewable Energy (EN-3)** | | |
| Offshore wind farms and offshore transmission will occupy an area of the sea or sea bed. For offshore wind farms in particular it is inevitable that there will be an impact on navigation in and around the area of the site. This is relevant to both commercial and recreational users of the sea who may be affected by disruption or economic loss because of the proposed offshore wind farm and/or offshore transmission. | Paragraph 2.8.178 | The economic impacts in relation to topics assessed in other chapters, such as commercial fisheries, shipping and navigation, and recreational users are considered in **Sections 20.6**, **20.7**, **20.8** and **20.9**. |
| As such, the Secretary of State should be satisfied that the site selection and site design of a proposed offshore wind farm and offshore transmission has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. Applicants will be required to demonstrate that risks to safety will be reduced to as low as reasonably practicable. | Paragraph 2.8.345 | **Chapter 4 Site Selection and Assessment of Alternatives** details the site selection process and how other users were considered. Further mitigation and design refinement is considered in other chapters as these chapters inform the socio-economic assessment, noting that consultation would be continued with other industries as the final design and layout is developed post-consent. |

## 20.4.2 Data and information sources

### 20.4.2.1 Site-specific surveys

20.28 To carry out the socio-economic, tourism and recreation assessment, it was not necessary to undertake any site-specific surveys.

### 20.4.2.2 Other available sources

20.29 The baseline assessment drew on a range of publicly available statistics. The key data sources are listed in **Table 20.4**.

20.30 Given the interconnected nature of the Project and the Transmission Assets, the environmental information for the Transmission Assets PEIR has also been used to inform this chapter (Morgan Offshore Wind Limited and Morecambe Offshore Windfarm Ltd, 2023).

*Table 20.4 Existing data sources used in this chapter*

| Data source | Date (released) | Data contents |
|---|---|---|
| Aitchison Fullabrook Wind Farm proposal, North Devon - evidence gathering of the impact of wind farms on visitor numbers and tourist experience. | 2004 | Study of the impact of onshore wind farms on the tourism economy of North Devon. |
| BiGGAR Economics, Wind Farms & Tourism Trends in Scotland: Evidence from 44 Wind Farms. | 2021 | Study of the impact of onshore wind farms on the tourism economy of Scotland. |
| BiGGAR Economics, East Anglia ONE North and East Anglia TWO Offshore Wind Farms: Tourism Impact Review. | 2019 | Study of the impact on tourism of two offshore wind farms near the Suffolk Coast Area. |
| British Sea Fishing, North West England. | 2022 | Information on major destinations for recreational sea angling in North West England. |
| Cefas, Participation, catches and economic impact of sea anglers resident in the UK in 2016 & 2017. | 2017 | Report on the prevalence of sea angling as a popular activity in the UK and its economic impact. |
| Direct ferries to Isle of Man. | 2022 | Information on the ferry routes to the Isle of Man. |
| International Monetary Fund (IMF), World Economic Outlook Database. | 2022 | Information on Gross Domestic Product (GDP) Growth. |

| Data source | Date (released) | Data contents |
|---|---|---|
| Finstrokes, Dive Map. | 2022 | Information on dive sites along the shoreline. |
| Glasgow Caledonian University/Moffat Centre, The Economic Impacts of Wind Farms on Scottish Tourism. | 2008 | Study of the impact of onshore wind farms on the tourism economy of Scotland. |
| iNews, How many General Practices (GPs) are in the UK? Map of regions with fewest GPs and postcode checker for your area. | 2021 | Information on the number of patients per GP practice by local authority in England. |
| Interweave Healthcare, How many hospitals in the UK? | 2021 | Information on the number of hospitals by region. |
| Kantar, Great Britain Day Visits Survey. | 2023 | Information on volume and levels of spending from day visitors. |
| Kantar, Great Britain Tourism Survey (Domestic Overnight Tourism). | 2023 | Information on volume and levels of spending from domestic overnight visitors. |
| Morgan and Morecambe Offshore Wind Farms: Transmission Assets PEIR (Morgan Offshore Wind Limited and Morecambe Offshore Windfarm Ltd, 2023) | 2023 | Socio-economics information from the Transmission Assets assessment. |
| Land Registry Data, House Price Statistics. | 2022 | Information on the average house price in the UK. |
| National Records of Scotland, Population Projections for Scottish Areas (2018-based). | 2020 | Information on projected population by 2043 and future demographic structure in Scotland. |
| NFO WorldGroup Ltd, Investigation into the potential impact of wind farms on tourism in Wales. | 2003 | Study of tourism perceptions in Wales. |
| Northern Ireland Statistics and Research Agency (NISRA), 2018-Based Population Projections: Principal Projection. | 2021 | Information on projected population by 2043 and future demographic structure in Northern Ireland. |
| NISRA, General Medical Services for Northern Ireland: Annual Statistics 2019/20. | 2020 | Information on the people per general practitioner in Northern Ireland. |

| Data source | Date (released) | Data contents |
|---|---|---|
| NISRA, Northern Ireland Annual Tourism Statistics 2019. | 2020 | Information on the volume of tourism and spending levels of tourists in Northern Ireland. |
| NISRA, Northern Ireland House Price Index. | 2022 | Information on the average house price in Northern Ireland. |
| Northern Ireland Department of Finance, Housing Stock by Local Government District 2008-2022. | 2022 | Information on the total supply of housing in Northern Ireland. |
| Northumbria University, Evaluation of the impacts of onshore wind farms on tourism. | 2014 | Study of the impact of wind farms on the tourism economy of Northumberland. |
| Office for National Statistics (ONS), 2018-based Population Projections. | 2020 | Information on projected population by 2043 and future demographic structure. |
| ONS, 2018-based subnational principal population projections for local authorities in England. | 2021 | Information on projected population by 2043 and future demographic structure in England. |
| ONS, Annual Population Survey. | 2022 | Information on skill levels and economic activity (e.g., rate of economic activity and unemployment rate) and households with dependent children. |
| ONS, Annual Survey of Hours and Earnings. | 2022 | Information on median annual earnings. |
| ONS, Jobs Density Survey 2022. | 2022 | Information on changes in employment over time. |
| ONS, Business Register and Employment Survey. | 2021 | Information on sectoral employment. |
| ONS, House price statistics for small areas in England and Wales. | 2023 | Information on house prices in North West England. |
| ONS, UK Input-Output Analytical Tables, Industry by Industry. | 2022 | Information on sectoral interactions across the UK economy. |
| ONS, International Passenger Survey. | 2020 | Information on volume and levels of spending from international overnight visitors. |
| ONS, Percentage of total monthly household income spend on private rent, England. | 2022 | Information on private rental affordability in England. |
| ONS, Annual Population Survey (Population estimates – local | 2022 | Information on total population and current demographic structure. |

| Data source | Date (released) | Data contents |
|---|---|---|
| authority based by single year of age) | | |
| ONS, Regional GVA (balanced) per head and income components. | 2023 | Estimates of GVA generated by the regional areas of the UK. |
| Regeneris and The Tourism Company, Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector. | 2014 | Study of the impact of wind farms on the tourism economy of Wales. |
| Scottish Government, Public Perceptions of offshore wind farm developments in Scotland. | 2022 | Information on how the public perceive the social, cultural and economic impacts of offshore windfarms, including those who have direct experiences of offshore wind projects being developed in their area. |
| Stats Wales, Dwelling stock estimates by local authority and tenure. | 2020 | Information on the housing stock in Wales. |
| Stats Wales, Population Projections by year and age. | 2021 | Information on projected population by 2043 and future demographic structure in Wales. |
| Stats Wales, General Medical Services. | 2022 | Information on the number of people per general practitioner in Wales. |
| Stats Wales, Education and skills. | 2022 | Information on pupil- teacher ratios in Welsh local authorities. |
| Surf Atlas, The Ultimate Guide to Surfing England. | 2022 | Information on major destinations for recreational surfing in England. |
| ONS, Annual Business Survey. | 2022 | Information on the turnover, employment and GVA of sectors across the economy. |
| ONS, Education and Training Statistics for the UK and School Workforce in England. | 2023 | Information on school numbers and pupil teacher ratios by UK region. |
| UK Government, Green Book: Appraisal and Evaluation in Central Government. | 2022 | Economic impact methodology. |
| UK Parliament, Local authority data: housing supply. | 2023 | Information on the housing stock in North West England. |

20.31 Where totals were not available at UK level, but only at the level of Great Britain, data sourced from Northern Irish statistical publications were added to the available evidence on Great Britain.

### 20.4.3 Impact assessment methodology

20.32 **Chapter 6 EIA Methodology** provides a summary of the general impact assessment methodology applied to the Project. The following sections outline the methodology used to assess the potential impacts on socio-economics and tourism.

20.33 The following sections set out the approach that has been followed in defining the magnitude of impact and the relative sensitivity of the receptors considered as part of the assessment.

#### 20.4.3.1 Definitions of magnitude

20.34 A series of dimensions need to be considered to establish the magnitude and probability of impact. These include:

- Spatial extent - The geographical area over which an impact may occur
- Duration - The duration over which an impact may occur (short term to long term)
- Frequency and/or likelihood of occurrence - How often the impact may occur and/or how likely occurrence is
- Severity - The degree of change relative to the baseline level

20.35 The socio-economic, tourism and recreation impacts have been considered over distinct study areas to capture the spatial extent of any impact. The magnitude of any impact has then been considered in relation to the baseline conditions within those study areas. Impacts may be positive or negative.

20.36 The frequency and temporal extent of any impact has been considered and those which occur over a short period of time have been described as temporary and those which occur over a longer period have been described as permanent. For example, those impacts that occur during the development and construction period are temporary and those that occur throughout the operations and maintenance period are permanent.

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

- Changes in economic activity
- Impacts to tourism and recreation assets
- Demographic and service demand impacts

20.38 Between 2000 and 2019, the average level of 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.

### Magnitude of economic impacts

20.39 The magnitude of employment impacts has been considered in relation to the levels of economic activity within a study area. The magnitude was considered to be relative to the number of people in employment, rather than the unemployed. The geographic split of impact analysis was based on where people work, rather than where they live. The economic impacts would derive from the distribution of contracts linked with the Project. Therefore, the approach that has been followed in distributing contracts between study areas is based on the potential locations of the companies.

20.40 In line with industry best practice, for the purposes of the assessment of GVA and employment impacts, the analysis focussed on:

- **Direct economic impacts**: economic impact associated with the activity of primary contractors involved in the development, construction and operations and maintenance of the offshore wind project
- **Indirect economic impacts:** 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 offshore wind project

20.41 The assessment also refers to the additional benefits associated with the spending in the economy by those employed to carry out works associated with the Project (induced economic impacts).

20.42 Economic impacts are expressed in terms of:

- GVA: a measure of economic activity expressed as the difference between an organisation's turnover and its non-staff operational expenditure
- Years of employment: a measure of short-term employment used in the context of jobs associated with construction and development activity. As an example, a job lasting for 18 months is equivalent to 1.5 years of employment
- Jobs: a measure of employment used to reflect long-term employment as that characterising the operations and maintenance phase

### Relationship between GVA and turnover

20.43 The GVA of any contract or area of spending that is captured within a study area is always less than the total turnover of this contract or area of spending. The GVA of an organisation is equivalent to the value that the organisation has added to its inputs. This value is typically considered to be the staff costs

(the value added by the employees of an organisation) plus the profits (the value added by the physical and financial capital of the organisation). The value of the inputs is typically considered to be the spending of the organisation in the supply chain. This assessment also considers the GVA further down the supply chain, the indirect economic impact. This captures a greater proportion of the turnover as GVA. However, as organisations would import goods and services from outside a study area, the sum of direct and indirect GVA would always be less than the turnover. This is outlined in **Plate 20.2**.

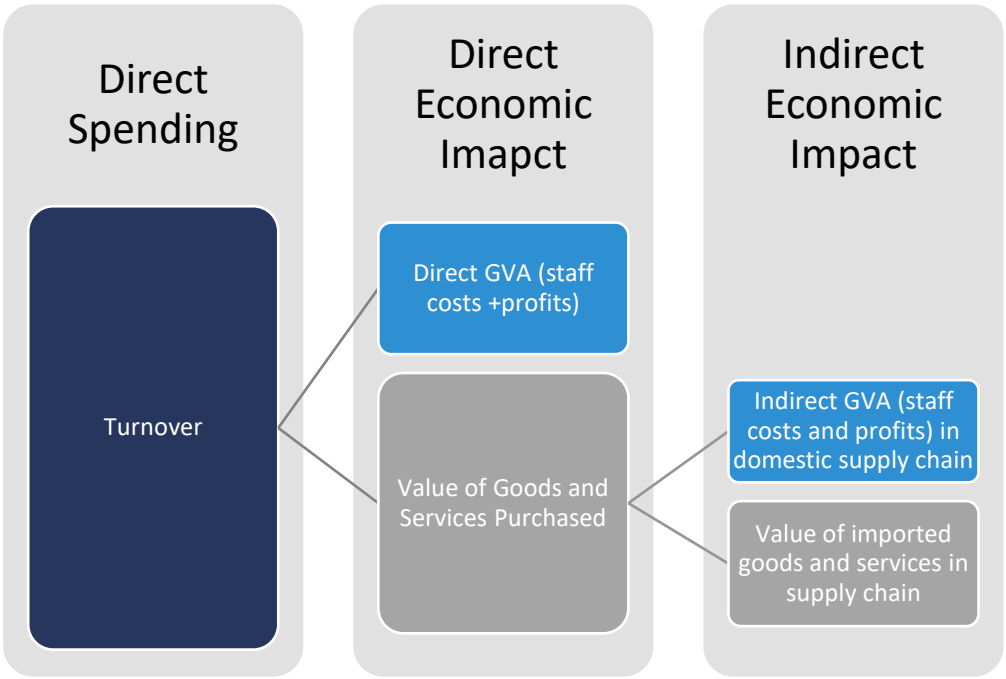


*Plate 20.2 Relationship between turnover and GVA*

20.44 The definitions of the magnitude of economic impacts are provided in **Table 20.5**.

*Table 20.5 Definition of magnitude for economic impacts*

| Magnitude | General economies |
|---|---|
| High | An impact would be considered to have a high magnitude if it was equivalent to all of the typical economic growth per capita. Specifically, for each study area:<br>▪ Peak annual GVA impact is greater than, or equal to, 1% of the economy<br>▪ Peak employment supported is greater than, or equal to, 1% of the total number of jobs |
| Medium | An impact 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:<br>▪ Peak annual GVA impact is greater than, or equal to, 0.5% of the economy; or<br>▪ Peak employment supported is greater than, or equal to, 0.5% of the total number of jobs |
| Low | An impact 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:<br>▪ Peak annual GVA impact is greater than, or equal to, 0.25% of the economy; or<br>▪ Peak employment supported is greater than, or equal to, 0.25% of the total number of jobs |
| Negligible | An impact would be considered to have a negligible magnitude if it was equivalent to less than a quarter of the typical economic growth per capita. Therefore, for each study area:<br>▪ Peak annual GVA impact is less than 0.25% of the economy; or<br>▪ Peak employment supported is less than 0.25% of the total number of jobs |

## Magnitude of sector specific economic impacts

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

20.46 The definitions of the magnitude of impacts within sectors are provided in **Table 20.6**.

*Table 20.6 Definitions of magnitude for sector specific economic impacts*

| Magnitude | Sector specific (including tourism) |
|---|---|
| High | An impact would be considered to have a high magnitude on a sector if the change within that sector was equivalent to all of the sector's share of typical economic growth per capita. Specifically, for each sector in a study area:<br>▪ Peak annual GVA impact within that sector is greater than, or equal to, 1% of the sector; or<br>▪ Peak employment supported by the sector is greater than, or equal to, 1% of the total number of jobs in that sector |
| Medium | An impact 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:<br>▪ Peak annual GVA impact within that sector is greater than, or equal to, 0.5% of the sector; or<br>▪ 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 impact 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:<br>▪ Peak annual GVA impact within that sector is greater than, or equal to, 0.25% of the sector; or<br>▪ 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 impact 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:<br>▪ Peak annual GVA impact within that sector is less than 0.25% of the sector; or<br>▪ Peak employment supported by the sector is less than 0.25% of the total number of jobs in that sector |

## Magnitude of impacts to tourism and recreation assets

20.47 Impacts, both positive or negative, would occur on tourism and recreation receptors if they are sensitive to changes that would occur because of the Project.

20.48 The impacts considered on tourism and recreation assets are changes to visitor or user behaviour and outcomes, and how it would change behaviour compared to the current baseline of visitor or user behaviour of the receptor.

20.49 The definitions of the magnitude of impacts on tourism and recreation assets are provided in **Table 20.7**.

*Table 20.7 Definitions of magnitude of tourism and recreational impacts*

| Magnitude | Tourism and recreation impacts |
|---|---|
| High | The impact on a tourism and recreation asset would be considered to have a high magnitude if is predicted to experience a major change of behaviour of visitors or users. |
| Medium | The impact on a tourism and recreation asset would be considered to have a medium magnitude if is predicted to experience a moderate change of behaviour of visitors or users. |
| Low | The impact on a tourism and recreation asset would be considered to have a low magnitude if is predicted to experience a minor change of behaviour of visitors or users. |
| Negligible | The impact on a tourism and recreation asset would be considered to have a negligible magnitude if is predicted to experience an undetectable change of behaviour of visitors or users. |

## Magnitude of social and community asset impacts

20.50 The magnitude of impacts on the social or community assets (housing, education and health facilities) is dependent on the demographic changes that would occur in each of the study areas because of the Project.

20.51 The severity of any change in demographics is measured against the level of annual change that is typical in the study area that it serves. This would be in line with the change a community or social asset would accommodate in a year. The definitions of the magnitude of impacts on social and community assets are provided in **Table 20.8**.

*Table 20.8 Definitions of magnitude of social and community asset impacts*

| Magnitude | Social and community asset impacts |
|---|---|
| High | The impact on a social or community asset would be considered to have a high magnitude if the change in residual population was equivalent to 100% or more of the average annual growth rate for the study area. |
| Medium | The impact on a social or community asset would be considered to have a medium magnitude if the change in residual population was equivalent to between 50% and 100% of the average annual growth rate for the study area. |
| Low | The impact on a social or community asset would be considered to have a low magnitude if the change in residual population was equivalent to between 25% and 50% of the average annual growth rate for the study area. |
| Negligible | The impact on a social or community asset would be considered to have a negligible magnitude if the change in residual population was equivalent to less than 25% of the average annual growth rate for the study area. |

#### 20.4.3.2 Sensitivity of receptors

20.52 For the purposes of this assessment, the sensitivity of a receptor is defined with respect to the following characteristics:

- 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

20.53 These dimensions of sensitivity have been applied to socio-economic and tourism receptors by considering:

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

## Sensitivity of economies

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

- Scale of the economy
- Diversity of sectors in the economy
- Level of economic activity
- Level of skills and education
- Level of economic potential from utilising capital (natural, human, social, economic)

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

20.56 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.

20.57 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.

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

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

20.60 The definitions of sensitivity are provided in **Table 20.9** for socio-economic receptors.

*Table 20.9 Definitions of sensitivity for a socio-economic receptors*

| 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:<br>▪ The economy is particularly reliant on a single sector<br>▪ The number of jobs in the economy has been declining over multiple years<br>▪ 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 that would contribute to an economy being considered of medium sensitivity include:<br>▪ The economy is particularly reliant on a small number of sectors<br>▪ The number of jobs in the economy has grown less than the wider economy<br>▪ The share of people with no qualifications is above the average for the wider economy |
| Low | A low sensitive economy is tolerant to changes without fundamentally altering its present character or value. Factors that would contribute to an economy being considered of low sensitivity include:<br>▪ Most sectors of the economy are well represented<br>▪ The number of jobs in the economy has grown in line with the wider economy<br>▪ The level of educational attainment is in line with the wider economy |
| Negligible | An economy with negligible sensitivity is very agile and will be able to accommodate changes without affecting its character or overall value. Factors that would contribute to an economy having negligible sensitivity include:<br>▪ The economy is well balanced between sectors<br>▪ The number of jobs in the economy has grown at a quicker rate than the wider UK economy<br>▪ The share of people with no qualifications is below average for the wider economy |

## Sensitivity of the tourism economy

20.61 The effect on the tourism economy is scoped into this assessment as it is specifically highlighted in the NPSs discussed in **Table 20.3**.

20.62 The assessment considers the effect of the Project on the tourism economy. This requires an assessment of the sensitivity of the tourism sector in the study

area. A tourism sector will be sensitive if there are only a few drivers for tourism or if there is a particular reliance on a particular type of visitor.

20.63 The assessment of sensitivity also considers the nature of the effect and the key drivers of the tourism economy in each study area. As presented in **Table 20.10** below, 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 that area.

20.64 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
- Sensitivity of key drivers of the tourism economy to the nature of the effect
- Types of visitors that are attracted to the area

20.65 The definitions of sensitivity are provided in **Table 20.10** for the tourism sector.

*Table 20.10 Definitions of sensitivity for 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 a tourism sector being considered of high sensitivity include:<br>▪ The tourism sector is particularly reliant on a single attraction or market that is sensitive to the environmental effect<br>▪ 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:<br>▪ The tourism sector is particularly reliant on a small number of attractions or markets that are sensitive to the environmental effect<br>▪ 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 will be able to absorb changes without fundamentally altering its present character or value. Factors that would contribute to a tourism sector being considered of low sensitivity include:<br>▪ The assets and markets that drive the tourism economy are not sensitive to the environmental effect<br>▪ The number of jobs in the tourism sector economy has grown at a similar rate to wider tourism sector |
| Negligible | A tourism sector with negligible sensitivity is very agile and will be able to accommodate changes without affecting its character or overall value. Factors that would contribute to a tourism sector being considered of negligible sensitivity include:<br>▪ There are a wide range of assets and markets that drive the tourism economy in the area<br>▪ The number of jobs in the tourism sector economy has grown at a faster rate than the wider tourism sector |

20.66 This assessment considers 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. Factors considered include:

- The contribution of the tourism sector to the local economy, including:
  - Tourism employment as a proportion of total employment
  - Contribution of the tourism sector to the productivity of the wider economy

- The contribution of the area to the tourism sector in the wider economy, including:
  - Number of visitors to the area relative to the number of visitors to the wider area
  - Presence of tourism attractions/receptors that are considered to be of national or regional importance

20.67 The effect of the tourism sector on the economy of the study area is considered as part of the economic impact analysis, if it is determined that the wider economy is sensitive to changes in the tourism sector.

### Sensitivity of tourism and recreation assets

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

20.69 The sensitivity of a tourism or recreation asset is determined by how reactive visitors, or users, of this asset are to 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.

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

20.71 The definitions of sensitivity are provided in **Table 20.11** for tourism and recreation assets.

*Table 20.11 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:<br>▪ Being dependent on a single environmental condition to attract or accommodate visitors and users<br>▪ 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 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:<br>▪ Being influenced by a single environmental condition to attract or accommodate visitors and users<br>▪ Having 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;<br>▪ Environmental conditions have a minor influence on the ability of the asset to attract or accommodate visitors and users<br>▪ 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;<br>▪ Environmental conditions have a negligible influence on the ability of the asset to attract or accommodate visitors and users<br>▪ Having substantial ability to adapt or adjust the assets in response to changes in visitor or user behaviour |

### Sensitivity of community and social assets

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

20.73 The adaptability and tolerance of the housing market to accommodate change in each study area is implied by the relative change in the price of housing stock compared to the wider economy. If prices have increased significantly more within a study area, this would suggest that the housing market has not been able to adapt to a change in demand.

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

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

20.76 A summary of the definitions and contributing factors for the sensitivity of community and social assets are given in **Table 20.12**.

*Table 20.12 Definitions of sensitivity for community and social assets*

| Sensitivity | Definition |
|---|---|
| High | A community or social asset with a high sensitivity will not be able to tolerate or adapt to impacts as these will result in a fundamental change in the ability of these assets to meet the needs of the community. Factors that will contribute to a community or social asset being considered of high sensitivity include:<br>▪ House prices have increased at a notably faster rate than the national average<br>▪ The number of GPs per capita is much lower than the national average<br>▪ The number of pupils per teacher is much higher than the national average |

| Sensitivity | Definition |
|---|---|
| Medium | A community or social asset with a medium sensitivity will have a limited capacity to tolerate or adapt to impacts as these will result in a moderate change in the ability of these assets to meet the needs of the community. Factors that will contribute to a community or social asset being considered of medium sensitivity include:<br>▪ House prices have increased at a faster rate than the national average<br>▪ The number of GPs per capita is lower than the national average<br>▪ The number of pupils per teacher is higher than the national average |
| Low | A community or social asset with a high sensitivity will be able to tolerate or adapt to impacts without a change in the ability of these assets to meet the needs of the community. Factors that will contribute to a community or social asset being considered of low sensitivity include:<br>▪ House prices have increased at a similar rate than the national average<br>▪ The number of GPs per capita is similar to the national average<br>▪ The number of pupils per teacher is similar to the national average |
| Negligible | A community or social asset with a negligible sensitivity will be resistant to change as they will have a greater capacity to tolerate changes than the wider country. Factors that will contribute to a community or social asset being considered of negligible sensitivity include:<br>▪ House prices have increased at a slower rate than the national average<br>▪ The number of GPs per capita is higher than the national average<br>▪ The number of pupils per teacher is lower than the national average |

#### 20.4.3.3 Impact significance

20.77 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 20.13**) as a framework to determine the significance of an effect. Definitions of each level of significance are provided in Table 20.14. Impacts and effects may be deemed as being either positive (beneficial) or negative (adverse).

20.78 It is important that the matrix (and indeed the definitions of sensitivity and magnitude) is seen as a framework to aid understanding of how a judgement has been reached from the narrative of each effect assessment and it is not a prescriptive formulaic method.

20.79 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, negligible effect and no change 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.

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

*Table 20.13 Impact significance matrix*

| | | Adverse 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 20.14 Definition of impact significance*

| Significance | Definition |
|---|---|
| Major | Very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving national, regional or local objectives, or could result in exceedance of statutory objectives and/or breaches of legislation. |
| Moderate | Intermediate change in receptor condition, which are likely to be important considerations at a local level. |
| Minor | Small change in receptor condition, which may be raised as local issues. |
| Negligible | No discernible change in receptor condition. |
| No change | No impact, therefore, no change in receptor condition. |

## 20.4.4 Cumulative effects assessment methodology

20.81 The CEA considers other plans, projects and activities that may impact cumulatively with the Project. As part of this process, the assessment considers which of the residual impacts assessed for the Project on its own have the potential to contribute to a cumulative effect. **Chapter 6 EIA Methodology** provides further details of the general framework and approach to the CEA.

20.82 For socio-economics, tourism and recreation, the potential cumulative impacts include:

- Economic impact on longer-term supply chains and skills from cluster development
- Impacts on demographics
- Impacts on housing supply and infrastructure
- Impacts on the tourism economy

20.83 As described in **Chapter 1 Introduction,** the Transmission Assets associated with the Project are undergoing a separate consent process as part of the Transmission Assets project. To enable impacts from the Project and the Transmission Assets to be considered together, a 'combined' assessment has been made within the cumulative assessment to identify any key interactions and additive effects (**Section 20.7.3.1**).

### 20.4.5 Transboundary effects assessment methodology

20.84 **Chapter 6 EIA Methodology** provides details of the general framework and approach to the assessment of transboundary effects.

20.85 For socio-economics, tourism and recreation, the potential for transboundary effects is mostly limited to the potential for other countries to benefit from the manufacturing contracts associated with the Project. As transboundary impacts arising from manufacturing would lead to positive benefits, impacts arising from manufacturing have been scoped out of the assessment.

20.86 Similarly, as any visual impacts would be limited to the coastline of the UK, there are no expected impacts on the tourism economy of neighbouring countries.

20.87 The Project is expected to interact with the ferry route linking Liverpool to Douglas on the Isle of Man. This transboundary effect and its potential implications for tourism activity on the Isle of Man has been considered in the assessment.

20.88 For transboundary effects, assessments have been based on the findings of other chapters, e.g., **Chapter 13 Commercial Fisheries**, **Chapter 14 Shipping and Navigation**, **Chapter 17 Infrastructure and Other Users**, please refer to the relevant chapters within the ES for more detail.

### 20.4.6 Assumptions and limitations

20.89 Data from official statistical sources, such as the surveys carried out by the ONS, are generally published with a lag of between one and two years. This means that part of the information included in the baseline, while being based

on the latest available data, does not reflect current economic activity. To provide the most up to date information possible, the baseline assessment was carried out in late 2023, close to the submission of this ES chapter.

20.90 Tourism data for some local authority areas tended to be based on surveys relying on relatively small samples. As such, similar data are best used to compare different areas with respect to the overall scale of tourism activity, as opposed to providing a precise measure of economic activity. Data sets were not available over the same timescales for all geographies. Consequently, for English local authorities within the Local Economic Area data for 2021-2023 have been used, whereas for Welsh local authorities reference is made to 2019 data.

20.91 The impact assessment has been based on the latest information available regarding the generating capacity of the Project. For the purposes of this assessment, it was assumed that the Project would have a total generating capacity of up to a nominal 480 megawatts (MW). Based on this, worst-case scenarios were designed with different number of WTGs installed and different generating capacity per WTG. In turn, generating capacity and the number of WTGs would affect the choice of UK construction ports capable of supporting the Project across the UK.

20.92 The economic model estimating impacts on construction and GVA from the Project relies on an Input-Output Methodology. One of the main data sources associated with this document is the UK Input-Output Tables, which, while it was last published in 2023, refers to sectoral interactions as of 2019 (ONS 2023).

20.93 As presented in **Appendix 20.1**, the analysis relied on the matching of economic activity and windfarm-related contracts to appropriate sectoral codes from the ONS Standard Industrial Classification (SIC) of Economic Activities.

20.94 The choice of the Local Economic Area was based on the information available on potential port locations at the time of writing. Given the port selection would be undertaken post-consent, it was not possible to make a more geographically targeted assessment. The conclusions of the assessment are valid, given the nature of works offshore, although it is noted that beneficial effects were therefore diluted.

20.95 The literature review on the relationship between wind farms and tourism has drawn on evidence from both onshore and offshore wind farm projects. Given the more widespread nature of onshore developments, this allowed for a more comprehensive overview.

20.96 None of the assumptions and limitations listed above are likely to affect the overall assessment of effects from the construction, operations and maintenance and decommissioning phases of the Project.

## 20.5 Existing environment

20.97 This section provides a baseline assessment of the existing environment from the perspective of socio-economics, tourism and recreation. The analysis has been carried out with reference to the following study areas:

- **Local Economic Area** (Liverpool, Halton, Sefton, Wirral, Copeland[5], South Lakeland[6], Barrow-in-Furness, Blackpool, Fylde, Lancaster, West Lancashire, Wyre, Cheshire West and Chester, Denbighshire, and Flintshire)
- **The UK**

### 20.5.1 Demographics

20.98 As shown in **Table 20.15**, in 2021, the Local Economic Area had a total population of over 2.6 million, accounting for 4% of the UK population (ONS, 2022a). The working age population (16-64 years old) comprised 62% of its population, which was lower than the share accounted for by this demographic across the UK (63%).

20.99 At 17%, the Local Economic Area had a smaller share of the population aged 0-15 years old compared to the UK (18%), but a larger share of its population was aged 65 or over (21%) when compared to the UK (19%).

*Table 20.15 Population estimates (ONS, 2022a)*

| | Local Economic Area | UK |
|---|---|---|
| **Total Population** | **2,656,100** | **67,026,300** |
| 0-15 | 17% | 18% |
| 16-64 | 62% | 63% |
| 65+ | 21% | 19% |

### 20.5.2 Population projections

20.100 As shown in **Table 20.16**, over the period between 2021 and 2043 the total population of the Local Economic Area is expected to increase by 7.0% from 2,656,100 to 2,841,761 (ONS, 2021a) (StatsWales, 2021). This is equivalent to an annual increase of approximately 8,440 people during the 22-year

[5] Copeland Borough Council is now part of Cumberland Council.

[6] Barrow in Furness and South Lakeland are now part of Westmorland and Furness Council.

period. Population growth in the Local Economic Area is expected to be slower than across the UK (8.2%).

20.101 The share of the working age population living in the Local Economic Area is expected to decrease from 61.6% in 2021 to 57.2% in 2043. Over the same period, the share of its population aged 65 and over is expected to increase from 21.4% to 26.3%.

20.102 Changes at UK level is broadly in line with trends across the Local Economic Area. During the period between 2021 and 2043 the share of the working age population is expected to fall from 62.9% to 59.2%. At the same time, the share accounted for people aged 65+ is set to increase from 18.7% to 24.1%.

20.103 Across the two study areas, the population is set to increase and similar trends in their demographic structures are expected. In addition, the relative share accounted for by people of working age is set to decline, while the share of those over 65 years old is expected to increase.

*Table 20.16 Population projections, 2021-2043 (ONS 2021)*

| | Local Economic Area | | UK | |
|---|---|---|---|---|
| | 2021 | 2043 | 2021 | 2043 |
| **Total Population** | **2,656,100** | **2,841,761** | **67,026,300** | **72,563,425** |
| 0-15 | 17.0% | 16.5% | 18.4% | 16.6% |
| 16-64 | 61.6% | 57.2% | 62.9% | 59.2% |
| 65+ | 21.4% | 26.3% | 18.7% | 24.1% |

## 20.5.3 Industrial activity

20.104 The share of employment in each main industry group is shown in **Table 20.17** for both the Local Economic Area and the UK. In the Local Economic Area, the human health and social work activities sector employed the largest share of workers, accounting for 16% of those in employment (ONS, 2022c), higher than the share of employment in this sector across the UK (13%).

20.105 Wholesale and retail were also relatively important employers in the Local Economic Area, accounting for 14% of local employment, which is a similar share as across the UK economy.

20.106 The relative share of those employed by the manufacturing sector was larger across the Local Economic Area (10%) than across the UK as a whole (8%). The construction sector employed a similar share of those in employment within the Local Economic Area and the UK (5%).

20.107 In the Local Economic Area, 5% of those in employment worked in transportation and storage, whereas 7% were employed in professional,

scientific and technical activities. A higher share of those in work were employed in this latter sector at the level of the UK economy (**Table 20.17**)

20.108 Accommodation and food service activities, generally associated with the tourism industry, employed 10% of workers in the Local Economic Area, larger than the total share of employment across the UK (7%). The arts, entertainment and recreation sector is also closely linked with the tourism economy and employed 3% of workers in the Local Economic Area, compared to 2% across the UK.

20.109 Employment in the two tourism-related sectors increased by 13% between 2017 and 2021 in the Local Economic Area, similar to the 15% growth that was experienced across the UK in the same time period.

*Table 20.17 Industrial structure, 2021 (ONS, 2022b)*

| | Local Economic Area | UK |
|---|---|---|
| Human health and social work activities | 16% | 14% |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | 14% | 13% |
| Manufacturing | 10% | 7% |
| Accommodation and food service activities | 10% | 8% |
| Education | 8% | 8% |
| Professional, scientific and technical activities | 7% | 9% |
| Administrative and support service activities | 6% | 9% |
| Public administration and defence; compulsory social security | 6% | 5% |
| Transportation and storage | 5% | 5% |
| Construction | 5% | 5% |
| Arts, entertainment and recreation | 3% | 2% |
| Financial and insurance activities | 3% | 3% |
| Information and communication | 2% | 4% |
| Other service activities | 2% | 2% |
| Real estate activities | 2% | 2% |
| Agriculture, forestry and fishing | 1% | 2% |
| Water supply; sewerage, waste management and remediation activities | 0% | 1% |
| Electricity, gas, steam and air conditioning supply | 0% | 0% |
| Mining and quarrying | 0% | 0% |
| **Total employment** | **1,205,000** | **32,172,341** |

*Note: totals may not add up due to rounding

### 20.5.4 Economic activity

20.110 As shown in **Table 20.18**, in 2022 the rate of economic activity in the Local Economic Area was 76%, two percentage points lower than the rate across the UK (78%). The unemployment rate in the Local Economic Area (3%) was slightly lower than the UK rate of 4%.

20.111 The median annual gross income of those working in the Local Economic Area was £26,467, lower than across the UK (£27,901).

20.112 Over the period between 2011 and 2021, the rate at which jobs have been created was larger across the UK (+13%) than across the Local Economic Area (+10%). This suggests economic activity in the Local Economic Area was less dynamic than elsewhere in the UK.

*Table 20.18 Economic activity (ONS, 2022c, 2022d, 2022e).*

| | Local Economic Area | UK |
|---|---|---|
| Economic Activity Rate (2022) | 76% | 78% |
| Unemployment Rate (2022) | 3% | 4% |
| Median Annual Gross Income (All Workers, 2022) | £26,467 | £27,901 |
| Jobs Growth (2011-2021) | 10% | 13% |

### 20.5.5 Education levels and skills

20.113 As shown in **Table 20.19**, in the Local Economic Area, 88% of those in the working age population have achieved an equivalent National Vocational Qualification Level 1 (NVQ1) qualification or higher, a similar share compared to the UK (88%). Similarly, 79% of those in the Local Economic Area achieved an NVQ2 qualification or higher, compared to 78% in the UK. The share of the population who achieved an NVQ3 qualification or higher is slightly lower in the Local Economic Area (59%) when compared to the UK (61%).

20.114 In the Local Economic Area, 39% of people have achieved at least an NVQ4 qualification, equivalent to a higher education certificate such as a Business and Technology Education Council (BTEC), which is lower than across the UK (44%). The share of people who have achieved no qualifications in the Local Economic Area is broadly similar to that across the UK (7%). Overall, the Local Economic Area has on average a lower share of its population with higher education qualifications.

*Table 20.19 Qualifications (ONS, 2022e)*

| NVQ Level | NVQ Equivalent | Local Economic Area | UK |
|---|---|---|---|
| % with no qualifications | n/a | 7% | 7% |
| % NVQ1+ | GCSE Grade D,E,F | 88% | 88% |
| % NVQ2+ | GCSE Grade A,B,C | 79% | 78% |
| % NVQ3+ | A Level, AS Level | 59% | 61% |
| % NVQ4+ | HNC, BSc, PhD | 39% | 44% |

### 20.5.6 GVA by area

20.115 As shown in **Table 20.20**, in 2021, the GVA generated within the Local Economic Area stood at £71.5 billion, accounting for 4% of the total GVA generated in the UK (£2,040.5 billion) (ONS, 2023a). Over the period 2011 to 2021, GVA has grown by 37% across the UK economy, a faster rate of growth than in the Local Economic Area (+31%).

20.116 In the same year, GVA per head of population supported by the Local Economic Area was £26,916 which is lower than GVA per head of the UK as a whole (£30,436).

*Table 20.20 GVA and GVA per head, 2021 (ONS, 2023a)*

| | Local Economic Area | UK |
|---|---|---|
| 2011 GVA (£ billion) | 54.6 | 1,485.9 |
| 2021 GVA (£ billion) | 71.5 | 2,040.5 |
| Change (2011-2021) | 31% | 37% |
| GVA per Head (£) | 26,916 | 30,436 |

### 20.5.7 Housing

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

20.118 Housing is more affordable in the Local Economic Area than across England and Wales. The mean house price value in the Local Economic Area as of December 2022 was £198,272, which is 64% lower than the national average of £326,153, as set out in **Table 20.21**.

20.119 Since 2012, the value of housing at the level of the Local Economic Area has increased by 47% compared to 69% growth across nationally.

20.120 In 2022, there were a total 1.1 million homes in the Local Economic Area, accounting for 5% of the national total housing stock (25.2 million homes).

*Table 20.21 House price values and changes (ONS, 2023b; UK Parliament, 2023)*

| | December 2012 | December 2022 | Change | Number of units (2022) |
|---|---|---|---|---|
| Local Economic Area | £135,168 | £198,272 | 47% | 1,145,736 |
| England and Wales | £193,327 | £326,153 | 69% | 25,160,404 |

20.121 Based on data from the 2021 Census (ONS, 2023e), in the Local Economic Area the vacancy rate (excluding second homes) is 6.7%, compared to 5.5% across England and Wales. While this suggests there are margins for an expansion in housing supply by bringing back to use some vacant properties, in reality, this may not be possible because of the costs associated with it (Savills, 2023).

### 20.5.8 Pupil teacher ratios

20.122 As a measure of class size and existing pressure on educational provision, the analysis considered the average class size. In the Local Economic Area, the average class size was broadly in line with that of the UK as a whole (ONS, 2023b), as shown in **Table 20.22**.

20.123 In the Local Economic Area, the average class size in primary school was 20 which is slightly lower than the ratio across the UK (21). At secondary school level, the average class size was 16 in both the Local Economic Area and the UK.

*Table 20.22 Class sizes 2022/23 (Stats Wales, 2022a; ONS, 2022a)*

| | Local Economic Area | UK |
|---|---|---|
| Primary | 20 | 21 |
| Secondary | 16 | 16 |
| **Total** | **18** | **17** |

### 20.5.9 Healthcare provision

20.124 The provision of health care in the Local Economic Area is primarily covered by the National Health Service, with Blackpool Victoria Hospital being the closest accidents & emergency hospital to the Project. The Local Economic Area is covered by the three integrated care boards of National Health Service (NHS) North East and North Cumbria; NHS Cheshire and Merseyside and NHS Lancashire and South Cumbria in England, and the Betsi Cadwalader University Health Board (UHB) in Wales.

20.125 Within the local authorities that comprise the Local Economic Area, there were 6,548 General Practitioners (GPs) in practices, serving a patient population of 8,423,810 (NHS Digital, 2022; StatsWales, 2022). This is equivalent to 1,287 patients per General Practice (GP) in the Local Economic Area (**Table 20.23**), which was lower than the number of patients per GP across England and Wales. Note that data has been collected and reported separately for each of the UK nations.

*Table 20.23 Patients per GP*

| | Local Economic Area | England and Wales |
|---|---|---|
| Patients per GP | 1,287 | 1,340 |

Note: Figures were calculated based on the most recent data that were available for both England and Wales.

### 20.5.10 Tourism economy

20.126 A range of statistics are available on visitor numbers and visitor spend for the Local Economic Area, including from the Great Britain Day Visitor Survey (Kantar, 2020a and Kantar, 2023), the Great Britain Tourism Survey (Kantar, 2020b and Kantar, 2023) and the International Passenger Survey (ONS, 2023c).

20.127 In 2021-2023 there were on average 66.0 million annual visitors to the Local Economic Area, with tourist spending amounting to £4.4 billion. Day visitors accounted for 90% of visitors to the Local Economic Area, with the remaining 10% accounted for by domestic overnight visitors. While day visitors spent the most in the Local Economic Area (£2.5 billion), domestic overnight visitors had a higher level of spending per visit (£271 per visit) than domestic day visitors (£42 per visit) (see **Table 20.24**).

20.128 The Local Economic Area accounted for 5% of total visits to Great Britain (1.2 billion). Visitors spend across Great Britain was worth a total £104.1 billion. As with the Local Economic Area, domestic visitors accounted for both the highest share of visits (97%) and spending (74%). Similarly, the spend per visit of tourists to the UK was highest amongst international overnight visitors, who spend an average £820 per visit, compared to £263 per visit spent by domestic overnight tourists, and £41 per visit spent on average in the UK by day visitors.

*Table 20.24 Visitors and tourism spending, 2021-23*

| Visitors (million) | Local Economic Area | Great Britain |
|---|---|---|
| Day visitors | 59.1 | 1,086 |
| Domestic overnight visitors | 6.9 | 125 |
| International overnight visitors | n/a | 32 |
| **Total Visitors** | **66.0** | **1,243** |
| **Spend (£ million)** | | |
| Day visitors | 2,489.8 | 45,043 |
| Domestic overnight visitors | 1,891.6 | 32,882 |
| International overnight visitors | n/a | 26,179 |
| **Total spending** | **4,381.4** | **104,104** |

### 20.5.11 Marine recreation

20.129 The coastline in the Local Economic Area offers a wide range of watersports. This includes a number of surf spots at Fleetwood Beach, Rossall Point, Blackpool South and Leasowe Bay, sailing clubs such as Southport Sailing Club, and watersport centres such as Fairhaven Lake. Kitesurfing is also a notable activity in the Local Economic Area, with clubs including Lytham Saint Annes Kitesurfing Club active in the area. There are also a number of dive clubs located on the North West coast of England and in North Wales. Dive sites, notably wrecks, are located on the North Wales coast and off the coast of Liverpool, as well as a shore site off Blackpool.

20.130 Given the location of the windfarm site 30km from shore there is no high recreational use recorded in Marine Management Organisation (MMO) (MMO, 2014) recreational modelling. However, angling, sailing and general motorboats would be expected in the windfarm site.

20.131 Details of recreational vessels are found in **Chapter 14 Shipping and Navigation**. Details on angling are found in **Chapter 17 Infrastructure and Other Users**.

### 20.5.12 Ferry routes

20.132 Four ferry operators are identified in the Eastern Irish Sea. Isle of Man Steam Packet Company (IoMSPC) operate between Douglas, Liverpool and Heysham. Seatruck operate between Heysham, Liverpool, Warrenpoint and Dublin. Stena operate between Liverpool, Heysham and Belfast. Finally, P&O operate between Liverpool and Dublin.

20.133 Currently, the journeys to Douglas from both Liverpool and Belfast take approximately 2 hours and 45 minutes, with 12 weekly sailings from Liverpool and two weekly sailings from Belfast (Direct Ferries, 2022). The route from Heysham takes 3 hours and 45 minutes, with 13 weekly sailings. Journey times between Liverpool and Belfast are around 8 hours with 16 sailings per week. Further information on ferry routes is provided in **Chapter 14 Shipping and Navigation** and **Appendix 14.1**.

### 20.5.13 The relationship between offshore windfarms and tourism

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

20.135 In 2022, the Scottish Government (Scottish Government, 2022b) published a perception study of public attitudes towards offshore windfarms. This included analysis of those who had lived experiences of offshore windfarms by living in coastal communities that had experience of the development, construction and operation of offshore windfarms. The study also considered how potential visitors to coastal communities perceived how the visibility of offshore wind turbines would impact their decision to holiday in an area. The vast majority of potential visitors (80%) stated that turbine visibility would make no difference to their choice of holiday destination. A minority (11%) stated that if offshore wind turbines were visible while on holiday, they would be less likely to holiday in that location. 4% of respondents stated they would be more likely to visit an area if offshore wind turbines were visible. Respondents under 44 years old were more likely to say that visibility of offshore turbines would make no difference to their holiday choices (84%) compared to those over 44 years old (75%).

20.136 In addition to considering how potential visitors anticipate they would react to the presence of offshore wind turbines, the study considered how perceptions had changed for those with a lived experience of an offshore windfarm. This found that half of the respondents who had initially disapproved of offshore wind developments in their area had changed their minds and now approved of them, after the windfarm was constructed.

20.137 The visibility of WTGs to onshore tourists and recreational receptors has the potential to affect the amenity of an area. However, tourism perception of onshore turbine research in rural Wales (NFO, 2003), North Devon (Aitchison, 2004), Scotland (Glasgow Caledonian University, 2008), and Northumberland (Northumbria University, 2014) showed that the majority of people did not perceive windfarms negatively. Furthermore, economic studies of Wales (Regeneris and The Tourism Company, 2014) and Scotland (Biggar Economics, 2021) demonstrated that windfarms had no measurable effect on the tourism economy.

20.138 With regard to offshore wind, in 2020 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.

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

### 20.5.14 Factors driving tourism activity

20.140 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

20.141 There exists no relationship between most of these factors and the existence of an offshore wind development. The assessment of tourism impacts during the construction, operations and maintenance of the Project consider whether visitor attractions and the motivations for visiting them would be affected by the windfarm.

20.142 In case any evidence found, for a change in tourism activity to happen, the following conditions would need to be met:

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

### 20.5.15 Future projections

20.143 Working age population projections are considered as part of the existing environment. Projections do not fundamentally change the characteristics of the existing baseline.

## 20.6 Assessment of effects

### 20.6.1 Receptors

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

20.145 The specific features defined within these receptors as requiring further assessment are listed in **Table 20.25**.

*Table 20.25 Socio-economics, tourism and recreation receptors relevant to the Project*

| Receptor group | Receptor | Relevant metric/measure |
|---|---|---|
| Economic | Economic Activity in the Local Economic Area | Employment, GVA, supply chain activity and development of low-carbon industry. |
| Economic | Economic Activity in the UK | Employment, GVA, supply chain activity and development of low-carbon industry. |
| Tourism sector | Tourism Activity in the Local Economic Area | Employment and GVA in the tourism sector. |
| Tourism and recreation receptors | Tourism and recreation attractions that experience significant environmental impacts | Change in visitor numbers within the Local Economic Area. |
| Community assets | Housing, schools and health facilities in the Local Economic Area | Demographics, class sizes, patients per GP, accommodation supply and relative prices. |

#### 20.6.1.1 Economic activity in the Local Economic Area – sensitivity

20.146 This receptor captures any changes in the level of employment and GVA within the Local Economic Area, including through supply chain activity.

20.147 The socio-economic baseline has identified the following characteristics with respect to the Local Economic Area:

- manufacturing activity plays a relatively more important role in the Local Economic Area compared with the UK as a whole, with professional service activities being relatively less important
- economic activity and the educational profile are broadly in line with the UK average
- the level of job growth has been lower than across the UK as a whole

20.148 On this basis, the sensitivity of the Local Economic Area to changes associated with its socio-economy has been assessed as **low** sensitivity.

#### 20.6.1.2 Economic activity in the UK – sensitivity

20.149 This receptor captures any changes in the level of employment and GVA within the UK, including through supply chain activity.

20.150 The socio-economic baseline has identified the following characteristics with respect to the UK economy:

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

20.151 In line with the approach set out in **Table 20.9**, the sensitivity of the UK economy has been assessed as **low**.

#### 20.6.1.3 Sensitivity of tourism sector and receptors

20.152 In line with the methodology outlined in **Section 20.4**, tourism sectors and assets are scoped into this assessment if other environmental assessments determine there would be significant effects on these receptors. Significant visual effects have been identified in Blackpool and Southport, so these tourism economies have been scoped into the assessment. In addition, the wider tourism economy within the Local Economic Area was considered a receptor.

#### Local Economic Area tourism economy – sensitivity

20.153 The tourism economy in the Local Economic Area employed 125,000 people and catered to over 88 million visits.

20.154 The tourism economy across the Local Economic Area is varied, with multiple markets and assets which attract visitors. This includes the city break attractions of Liverpool, the traditional seaside resorts of Blackpool and Southport and the countryside attractions of the Lake District.

20.155 Employment in the tourism economy in the Local Economic Area has grown at a similar rate to the wider UK economy, as discussed in **Section 20.5.3**.

Therefore, in line with the approach in **Section 20.4.3.3** the sensitivity of the tourism economy in the Local Economic Area has been assessed as **low**.

### Blackpool tourism receptors – sensitivity

20.156 **Chapter 18 SLVIA** has identified that there would be significant visual impacts from the Blackpool Tower, Blackpool Beach and the neighbouring Lytham St Anne's Beach. Blackpool is one of the key drivers of the tourism economy in the Local Economic Area and therefore the sensitivity of these receptors to change as a result of the visual impacts have been scoped into the assessment.

20.157 Blackpool is one of the most popular domestic visitor destinations in the UK. A study in 2018 (VisitEngland, 2018) found that 65% of all UK domestic holiday makers had visited Blackpool at some point. Visitors to Blackpool were more likely to be young, 42% of adult respondents were aged between 18 and 34, compared to 22% of other seaside towns.

20.158 The analysis also considered the key drivers of tourism in the area. This found that the primary attribute that attracted visitors to Blackpool was the range of attractions and things to do, which 81% of respondents considered to be either excellent or very good. The average across all seaside destinations was 68%. The quality of the natural environment was the lowest ranked attribute for Blackpool, with only 40% of respondents considering it to be either excellent or very good, compared to 74% of all seaside destinations. Similarly, only 47% of respondents highly ranked the beaches of Blackpool, compared to 68% across the UK.

20.159 The definition of sensitivity considers the ability of a receptor to adapt, tolerate and recover from an impact and the value and importance of these receptors. The Blackpool Tower and beach are important assets in the tourism economy of Blackpool and therefore of the wider tourism economy. The Blackpool tourism economy is dynamic and the wide range of attractions and drivers would contribute to its ability to adapt or recover from to any change.

20.160 To assess the ability of the Blackpool tourism economy, and the specific attractions identified, to tolerate changes in the seascape it is necessary to consider the profile of visitors, reasons for visiting and any similar examples that can be drawn on. The visitors to Blackpool were younger than the UK average and primarily visited for the attractions that are on offer. This is similar to the visitor profile of Brighton, another seaside destination. Brighton Pier is the most popular free coastal attraction in the UK (VisitEngland, 2022) and the Rampion Offshore Wind Farm, which was constructed in 2016/17 is visible from the pier and is closer to Brighton Pier than the Project would be from Blackpool. Despite the visibility of the offshore windfarm, the number of visitors to Brighton Pier increased from 4.5 million in 2014 to 4.9 million in 2019. This would suggest that Brighton Pier was able to tolerate this addition to the

seascape. In addition, a visitor centre was opened – Rampion Visitor Centre – to increase awareness and understanding of the wind farm. This has now become a local visitor attraction hosting group and school visits.

20.161 With a similar visitor profile and a further distance to shore it has been determined that the Blackpool tourism economy, and specific receptors identified, would be tolerant of the significant visual impacts identified in **Chapter 18 SLVIA** noting that distant views from existing windfarms are also part of the seascape.

20.162 Therefore, the sensitivity of the Blackpool Tourism economy, and the specific receptors identified, has been assessed as **negligible**.

### Southport tourism receptors – sensitivity

20.163 **Chapter 18 SLVIA** has identified that there would be significant visual impacts from Southport Pier.

20.164 The primary driver of tourism to Southport was the retail offering of the town, which 91% of visitors used during their visit. Just under half (46%) of visitors went to either Southport Pier or the Beach (North West Research, 2014).

20.165 The tourism economy in Southport is different to that of Blackpool. It is highly seasonal, with more than 50% of trips to the area occurring in the Easter Holidays, Summer Holidays and the October Break. The age profile of visitors was also significantly older than visitors to Blackpool, with 27% of visitors being 65 or over and only 12% aged 16 to 34. Two thirds of visitors were from elsewhere in the North West of England.

20.166 The tourism economy in Southport has struggled in recent years, particularly with the closure of Pleasureland Amusement Park and the decline of the retail offering on Lord Street. The Southport Town Deal (Sefton Council, 2020), that was approved in 2021 highlighted three priority areas for investment, and the first of these was to strengthen the visitor economy.

20.167 The definition of sensitivity considers the ability of a receptor to adapt, tolerate and recover from an impact and the value and importance of these receptors. The economic value of the activity on the pier is low, in comparison to other attractions of the town. The primary viewing points in the café at the end of the pier are to the south, and therefore the Project would not be visible from inside. At the viewpoint at the end of the pier there is a coin operated telescope, that enables visitors to look for far away objects in more detail. The pier has been adapted to enable visitors to see distant objects. It is therefore determined that the pier would be tolerant of the significant visual impacts identified in **Chapter 18 SLVIA**.

20.168 The tourism economy in Southport is particularly reliant on a small number of attractions and markets. The key driver of this market, retail, is not sensitive

to changes to the seascape, however, the secondary driver of the coastal experience has the potential to be sensitive. The sensitivity of the tourism economy in Southport to potential visual impacts from Southport Pier has therefore been identified as **low**.

#### 20.6.1.4 Community and social assets in the Local Economic Area

20.169 This receptor captures any changes in the level of employment and GVA within the UK, including through supply chain activity.

20.170 The socio-economic baseline has identified the following characteristics with respect to the Local Economic Area:

- The increase in house prices is in line with the UK average
- The average class size is in line with the UK average
- The number of patients per GP is lower than the UK average

20.171 In line with the approach set out in **Table 20.12**, the sensitivity of the social and community aspects has been assessed as **low**.

### 20.6.2 Potential effects during construction

#### 20.6.2.1 Estimating development and construction expenditure

20.172 The Project would generate economic impacts through the expenditure that would be required during its development and construction.

20.173 The economic impact assessment, including both the GVA that would be generated and the employment that would be supported, was therefore based on estimates of the expenditure that would be required.

20.174 The assessment of GVA impacts during construction was based on a worst-case scenario where the smallest number of largest WTGs would be installed. This scenario is likely to reduce the level of spending in areas which UK businesses would be able to contribute because this would require the most specialised facilities, infrastructure and equipment.

20.175 The scope of this assessment is to consider the economic impacts associated with the Project (Generation Assets). An analysis by the Applicant of the potential expenditure estimated that the capital investment costs associated with the Generation Assets would be approximately £1.3 billion (**Table 20.26**). This includes the costs associated with licence and option fees.

20.176 The largest category of expenditure to support the construction of the Project is expected to be the WTGs (including nacelle blades and towers). This is expected to account for around 40% of all the capital expenditure (inclusive of licence and option fees).

*Table 20.26 Construction and development: potential expenditure by category (Values rounded to nearest £10m)*

| | Value (£m) | Share of CAPEX |
|---|---|---|
| WTGs (nacelle, blades and towers) | 490 | 37% |
| Foundations (Supply) | 290 | 22% |
| Foundations (Installation) | 100 | 8% |
| Offshore Substation Platform(s) | 40 | 3% |
| Financial Costs | 70 | 5% |
| Development and Consenting (including licence and option fees) | 265 | 20% |
| Inter array Cable Supply and Installation | 60 | 5% |
| Operations and Maintenance (O&M) Base | 10 | 1% |
| **Total** | **1,325** | **100%** |

### 20.6.2.2 Estimating distribution of expenditure

20.177 The economic impacts from the development and construction of the Project have been estimated for the Local Economic Area and the UK.

20.178 The primary construction port(s) used to supply the Project has not been selected at this stage. For the purposes of this analysis, to be conservative the assessment has considered the loadout port in the context of the wider UK assessment.

20.179 It is estimated that 42% of development and construction spending would occur in the UK. This is equivalent to approximately £559 million. The majority of this expenditure (£265 million) would be linked with development and consenting activity, including licence and option fees. Most of the remaining UK spending would be associated with the manufacturing of components such as the foundations, the installation of the foundations and the turbines, and financing costs.

20.180 It is estimated that a conservative minimum of 1% of the total development and construction spend would occur within the Local Economic Area. This is equivalent to approximately £16 million and is included in the 42% of spending within the UK. This would include works associated with the operation and maintenance base and some development and consenting services.

20.181 If the primary construction port is located within the Local Economic Area, the level of spending, and subsequent economic activity, would increase substantially.

### 20.6.2.3 Impact 1: Increase in GVA

#### Description of impact

20.182 The first round of expenditure and economic impact would occur within the Project 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 would generate GVA within these companies, which is measured by the sum of the profits and staff costs that would be stimulated by this turnover.

20.183 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 Survey (ONS, 2022f), turnover/GVA ratios were applied to each specific sub-contract in order to estimate GVA. For example, the construction of the operations and maintenance base was distributed between the SIC Codes:

- 41 – Construction of buildings
- 42 – Civil Engineering

20.184 There would also be knock on effects in the supply chain as these directly procured companies in turn 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, to the direct GVA impacts.

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

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

20.187 In addition to adjusting for economic multipliers, the analysis discounted capital expenditure figures to account for the inflationary pressures that have affected the offshore wind sector since 2021. This was a requirement because the latest economic data, that provides the impact ratios for each sector, was collected by the ONS prior to the increase in prices. According to energy information company Energy Intelligence, since 2021, costs in the sector have increased between 11% and 20% (Energy Intelligence, 2023). On this basis, capital spending figures were adjusted using a mid-point deflator of 16%. This

adjustment ensures estimates of GVA and employment associated with development and construction activity reflect economic activity rather than price changes.

20.188 While expected to generate economic impact, the activities supported by spending on the licence and option fees are not known at this stage, which makes it challenging to estimate their contribution to economic activity. For this reason, the assessment of economic impact did not include spending on the licence and option fees.

### Sensitivity

20.189 The sensitivity of the economic receptors is discussed in **Section 20.6.1**. This assessment determined:

- Sensitivity of the economy of the Local Economic Area was **Low**
- Sensitivity of the economy of the UK was **Low**

### Magnitude

20.190 Based on the assumptions set out above, it was estimated that over its construction period, the Project could result in a total spending across the UK excluding licence of option fees and discounted for inflation of £337 million.

20.191 It was then possible to estimate the GVA supported by the construction of the Project and by supply chain spending. For more details on the economic impact methodology, please refer to the methodological statement (**Appendix 20.1**).

20.192 As shown in **Table 20.27**, the construction of the Project is expected to generate a total:

- £10 million GVA in the Local Economic Area
- £259 million GVA across the UK

*Table 20.27 Construction and development: Total GVA (BiGGAR Economics Model)*

| | Local Economic Area | UK |
|---|---|---|
| Direct GVA (£m) | 6 | 144 |
| Indirect GVA (£m) | 3 | 116 |
| **Total GVA (£m)** | **10** | **259** |
| Induced GVA (£m) | 4 | 101 |
| *Total GVA including induced GVA (£m)* | *14* | *360* |

20.193 In addition to the direct and supply chain impacts, the Project would support economic activity through the spending of those employed during its construction (induced impacts). These benefits could amount to an extra £4 million in the Local Economic Area and £101 million GVA across the UK.

20.194 The development and construction of the Project is expected to cover the period of 2022 to 2029. The majority of this activity would occur during the construction phase between 2027 and 2029. It is at this point that the economic activity supported by the Project would peak. An indicative programme for the construction of the Project is described in **Chapter 5 Project Description**. It is assumed that the manufacturing of components, including jackets and WTG components, would occur in the year prior to their installation.

20.195 Based on the indicative construction programme, at its peak the construction of the Project is expected to support the equivalent of £6 million GVA in the Local Economic Area and £80 million GVA in the UK. The analysis used in this assessment considered the level of activity in each quarter, however GVA values are normally reported on an annual basis. Therefore, to estimate the equivalent peak value of GVA, a rolling average of annual equivalent GVA was estimated for each quarter. This is shown in **Plate 20.3**. The peak is expected to occur at the end of 2027 and the end of 2028, to reflect the overlap of manufacturing and installation activities.

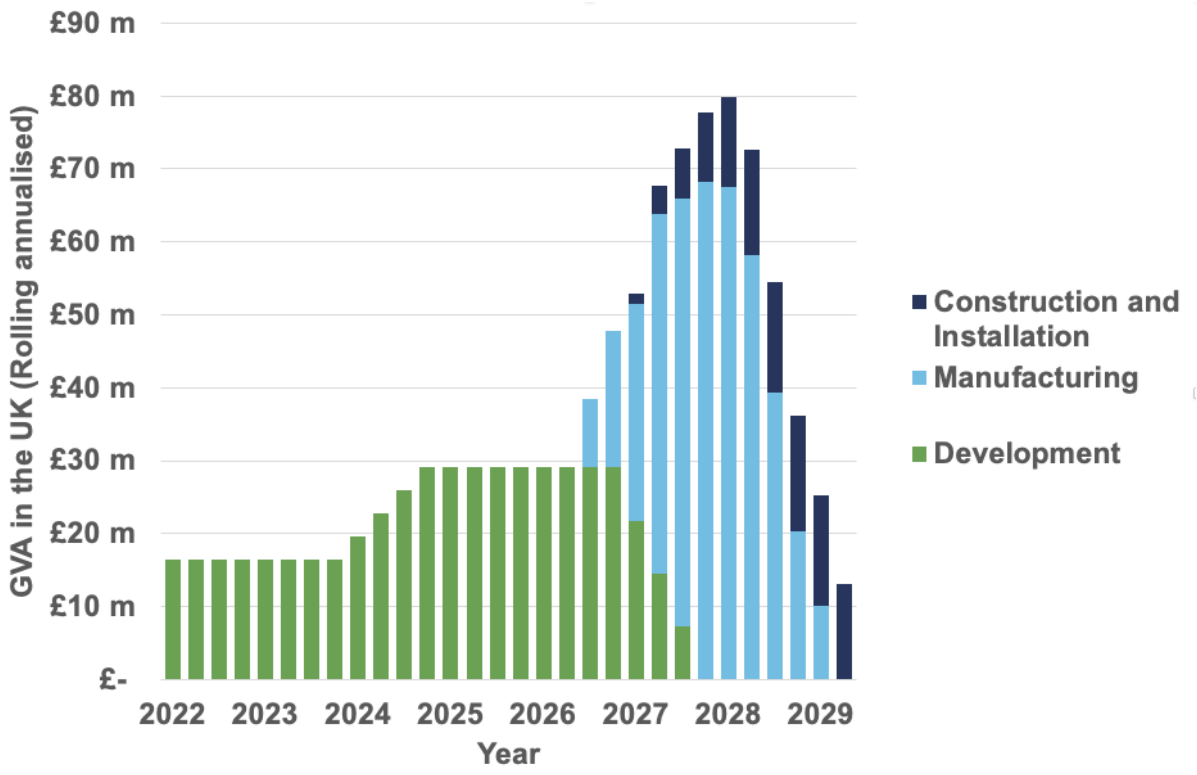


*Plate 20.3 Indicative GVA (direct and indirect) profile in the UK, by year (rolling annualised)*

20.196 In 2020, the GVA of the Local Economic Area was £63 billion and that of the UK was £1.9 trillion, as shown in **Table 20.28**. On this basis, the GVA attracted by the Project was equivalent to <0.1% of the GVA of the Local Economic Area and <0.1% of UK GVA.

*Table 20.28 Construction and development: Magnitude of GVA impact*

| | Local Economic Area | UK |
|---|---|---|
| Peak GVA (£m) | 6 | 80 |
| Current GVA of Study Area (2020, £m) | 62,660 | 1,949,000 |
| Peak GVA as % of Current GVA | <0.1% | <0.1% |
| **Magnitude of impact** | **Negligible beneficial** | **Negligible beneficial** |

20.197 The magnitude of impacts was assessed as **negligible beneficial** for the Local Economic Area and **negligible beneficial** for the UK, in line with the criteria outlined in **Section 20.6**.

## Significance of effect

20.198 Based on the assessments of sensitivity and magnitude, the effect of the construction and development of the Project on the economy of the Local Economic Area was assessed as **negligible beneficial**. Its effect on the economy of the UK was assessed as **negligible beneficial**. Effects are not considered significant in EIA terms.

*Table 20.29 Construction and development: Significance of GVA*

| | Local Economic Area | UK |
|---|---|---|
| Magnitude of impact | Negligible beneficial | Negligible beneficial |
| Sensitivity of receptor | Low | Low |
| **Significance of effect** | **Negligible beneficial** | **Negligible beneficial** |

## Consideration of adverse economic effects

20.199 The assessment carried out as part of **Chapter 13 Commercial Fisheries** initially found a moderate (significant) effect on the UK potting fleet from reduction in access and exclusion from fishing ground during Project construction. Exclusion from fishing ground also leads to moderate (significant) effects from gear conflict and increased fishing pressure on adjacent grounds.

20.200 A series of mitigation measures are set out in **Chapter 13 Commercial Fisheries**, including evidence-based disturbance payments as set out in

guidance from the Fishing Liaison with Offshore Wind and Wet Renewables (FLOWW) Group. Following mitigation effects on commercial fisheries during construction were assessed as non-significant. The use of evidence-based disturbance payments means any economic losses would be limited.

20.201 **Chapter 14 Shipping and Navigation** focuses on operational effects given their long-term duration (see below). It is expected any cumulative effects during construction would be of similar or lower significance.

20.202 As a result of this, **no significant** effects on economic receptors are expected.

#### 20.6.2.4 Impact 2: Increase in employment

##### Description of impact

20.203 The development and construction of the Project would result in the creation of employment during the construction phase. The estimation of employment impacts relied on the same methodology and assumptions adopted to estimate the impact on GVA.

20.204 As the construction of the Project would generate short term employment, any impacts on employment have been 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.

20.205 Due to challenges in allocating spending on the licence and option fees, as done when considering GVA impacts, this spending was not accounted for when estimating impacts on employment.

##### Sensitivity

20.206 The sensitivity of the economic receptors is discussed in **Section 20.6.1**. This assessment determined:

- Sensitivity of the economy of the Local Economic Area was **Low**
- Sensitivity of the economy of the UK was **Low**

##### Magnitude

20.207 Based on the above assumptions, it was estimated that under a worst-case scenario the Project could result in the creation, as shown in **Table 20.30** of:

- 120 years of direct and indirect employment in the Local Economic Area
- 3,390 years of direct and indirect employment across the UK

*Table 20.30 Construction and development: total employment*

| | Local Economic Area | UK |
|---|---|---|
| Direct Employment (Years of Employment) | 80 | 1,930 |
| Indirect Employment (Years of Employment) | 40 | 1,460 |
| **Total Employment (Years of Employment)** | **120** | **3,390** |
| Induced Employment (Years of Employment) | 50 | 1,480 |
| *Total Employment Including Induced (Years of Employment)* | 170 | 4,870 |

20.208 In addition to the direct and supply chain impacts considered above, the Project would support economic activity through the spending of those employed during its construction (induced impacts). These benefits could amount to an extra 50 years of employment in the Local Economic Area and 1,480 years of employment across the UK.

20.209 The construction of the Project would also support the creation of those skills making the realisation of similar projects possible. To this end, the Applicant is developing a Skills and Employment Plan setting out potential avenues for its role in skills development. An Outline has been provided as part of the DCO Application (Document Reference 6.11).

20.210 The development and construction of the Project is expected to cover the period of 2022 to 2029. The majority of this activity would occur during the construction phase between 2027 and 2029. It is at this point that the economic activity supported by the Project would peak. An indicative programme for the construction of the Project is described in **Chapter 5 Project Description**. It is assumed that the manufacturing of components, including jackets and WTG components, would occur in the year prior to their installation.

20.211 Based on the indicative construction programme, at its peak the construction of the Project is expected to support 70 jobs in the Local Economic Area and 1,320 jobs across the UK. This peak is expected to occur at the end of 2027 and through 2028, to reflect the overlap of manufacturing and installation activities. An indicative employment profile is shown in **Plate 20.4**.

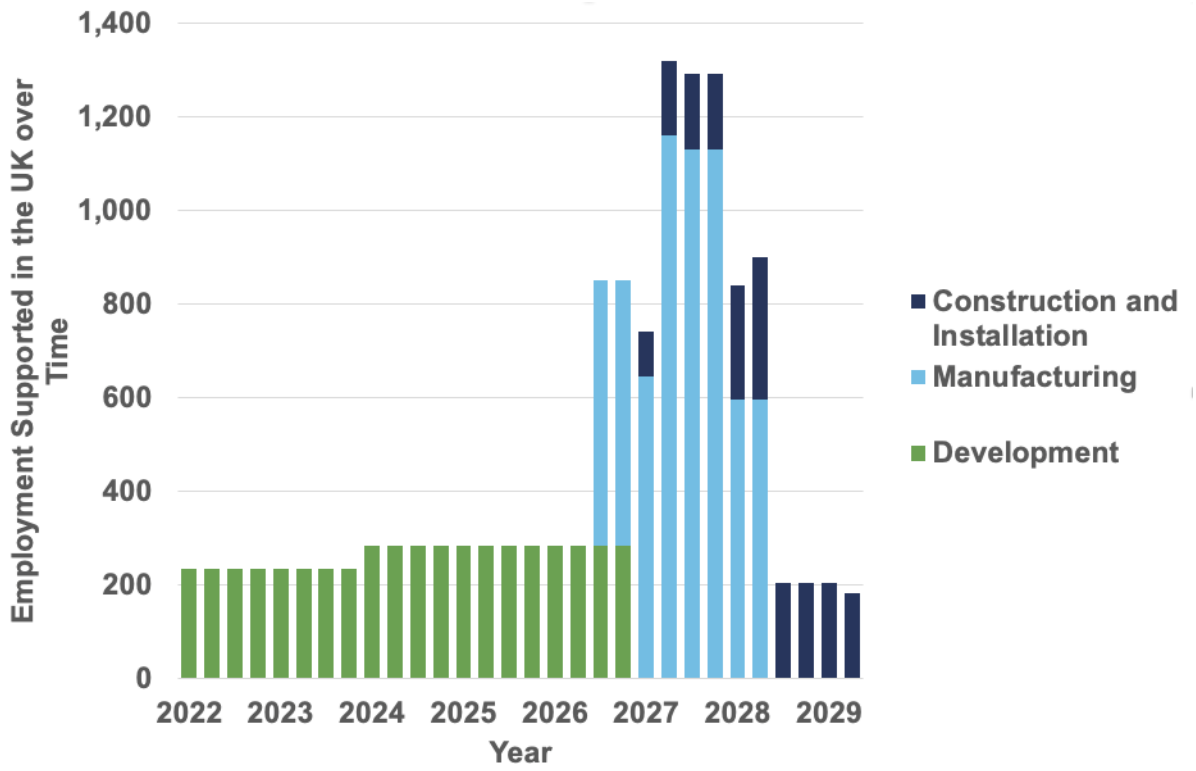


*Plate 20.4 Indicative employment (direct and indirect) profile in the UK, by year*

20.212 The level of employment supported is less than 0.1% of total employment in the Local Economic Area across the UK. In line with the criteria outlined in **Section 20.6**, magnitude was assessed as **negligible beneficial** for both the Local Economic Area and the UK (**Table 20.31**).

*Table 20.31 Construction and development: Magnitude of employment impact*

| | Local Economic Area | UK |
|---|---|---|
| Peak employment (jobs) | 70 | 1,320 |
| Current jobs | 1,168,035 | 31,326,550 |
| Peak jobs as % of current jobs | <0.1% | <0.1% |
| **Magnitude of impact** | **Negligible beneficial** | **Negligible beneficial** |

## Significance of effect

20.213 Based on the assessments of sensitivity and magnitude, the effect on the economy of the Local Economic Area from the employment associated with the development and construction of the Project was assessed as **negligible beneficial** (**Table 20.32**). The effect on the economy of the UK was assessed as **negligible beneficial**. Effects are not considered significant in EIA terms.

*Table 20.32 Construction and development: significance of employment increase*

| | Local Economic Area | UK |
|---|---|---|
| Magnitude of impact | Negligible beneficial | Negligible beneficial |
| Sensitivity of receptor | Low | Low |
| **Significance of effect** | **Negligible beneficial** | **Negligible beneficial** |

### Consideration of adverse employment effects

20.214 Based on the analysis in **Chapter 13 Commercial Fisheries**, there is no expectation of any significant impacts on the employment supported by commercial fisheries.

20.215 Based on the analysis in **Chapter 14 Shipping and Navigation** there is no expectation of significant impacts on the employment supported by shipping and navigation.

### 20.6.2.5 Impact 3: Community and Social Assets

### Description of impact

20.216 The potential for an influx of transient workers having an impact on community and social assets has been scoped into this assessment for the Local Economic Area. This assessment considered the potential impacts associated with a change in demand for housing, educational and healthcare facilities as a result of this workforce.

### Sensitivity

20.217 The sensitivity of the community and social asset receptors are discussed in **Section 20.6.1** and have been assessed as **low**.

### Magnitude

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

20.219 The impact is considered to be adverse, as the increase in demand on services could reduce the availability of services to a wider population, if the demand of services is not able to adapt in the short term.

20.220 As shown in **Section 20.6.2.4** it is expected that the peak employment supported in the Local Economic Area during construction would be 70 jobs. On average, the population in the Local Economic Area is expected to grow by 8,000 people a year. In the unlikely event that all of these jobs supported during the construction and development phase were transient, this would be equivalent to 0.9% of the projected annual population growth of the Local Economic Area. In line with the criteria outlined in **Section 20.6**, the magnitude of this effect has been assessed as **negligible adverse**.

### Significance of effect

20.221 Based on the assessment of both magnitude and sensitivity, the effect of the Project's construction and development on the community and social assets was assessed as **negligible adverse** for the Local Economic Area and therefore not significant in EIA terms (**Table 20.33**).

*Table 20.33 Significance of community and social asset*

| | Local Economic Area |
|---|---|
| Magnitude of impact | Negligible adverse |
| Sensitivity of receptor | Low |
| **Significance of effect** | **Negligible adverse** |

20.222 It is acknowledged that once the port location is known, the receiving environment may be defined within a smaller geography. Therefore, it may experience a greater relative magnitude of effects and increased sensitivity than considered for the Local Economic Area and UK. However, significant effects are not considered to be likely. This is based on the assumption that a multinational workforce would be used as vessel personnel and technical specialists may not be UK based citizens or residents. It is usual for travelling personnel to require hotel accommodation at one, or both, ends of their offshore trips depending on travel availability.

20.223 As detailed in **Chapter 22 Traffic and Transport,** it is also assumed that a large established commercial port(s) would be used and that activities at the port(s) associated with the Project construction would be licenced under the selected port(s) permitted activities. It is assumed working within the port(s) permitted activity would avoid the potential for significant effects in the context of EIA.

### 20.6.2.6 Impact 4: Tourism economy

### Description of Impact

20.224 The changes in the surrounding environment brought about by the construction of the Project could, at least in theory, have an impact on the tourism economy of the Local Economic Area.

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

- The offshore windfarm construction has some impact(s) on the area
- Visitors, or potential visitors are aware of such impact(s)

- Visitors, or potential visitors, react by changing their behaviour. For example, by changing the length of stay, where they choose to visit or the activities that they undertake
- The change in behaviour results in a change in their level of spending
- These changes in visitor spending result in a change in performance of the tourism sector, for example, a change in employment

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

20.227 As presented in **Section 20.3.1** the location of the primary construction port has not been identified at this stage. Therefore, the assessment of impacts during the construction phase considered any significant effects that could be identified on specific tourism and recreation assets.

20.228 The significant environmental effects that have been identified in other sections of the ES on specific tourism receptors during the construction phase were considered to be the same as those identified during the operations and maintenance phase. Specifically, in **Chapter 18 SLVIA**, the impacts during construction were considered to be the same as those during operations and maintenance, with the exception being that construction impacts are temporary in nature. The tourism and recreation impacts considered during construction were therefore an extension of the impacts during the operations and maintenance phase, described in **Section 20.6.3.3**.

20.229 It is also noted that, as identified in **Chapter 14 Shipping and Navigation**, the windfarm site location would cause one of the Stena Line ferry routes from Liverpool to Belfast to require re-routeing with an additional 1.6nm distance. No increase in journey distance is recorded for ferries to the Isle of Man from Liverpool or Heysham. However, for the Liverpool to Douglas IoMSPC route, a small number of vessels (approximately 6%) on this route do pass through the south-western corner of the windfarm site. These vessels would be required to navigate to the south-west of the site, along the primary route.

### Sensitivity

20.230 The tourism economy across the Local Economic Area is varied, with multiple markets and assets which attract visitors. This includes the city break attractions of Liverpool, the traditional seaside resorts of Blackpool and Southport and the countryside attractions of the Lake District. The sensitivity of these receptors is considered above in **Sections 20.6.1.3** and **20.6.1.4**. As a result, the sensitivity of the overall tourism economy has been assessed as **low**.

### Magnitude

20.231 **Chapter 18 SLVIA** has identified potentially significant effects that may impact on key tourism receptors during the construction phase in the Local Economic Area, including viewpoints from Blackpool and Southport.

20.232 The visitors, or potential visitors, may be aware of the visual impacts that are described because they would be able to see the Project at these destinations during the construction phase, including potentially jack-up vessels. However, it is unlikely that visitors, or potential visitors, would react to these views by changing their behaviour. In both locations, the seaward views are not the primary reason for visiting, which is either shopping in Southport, or the wide variety of attractions in Blackpool. In addition, there is no evidence that the visibility of offshore WTGs from these locations would lead to changes in visitor behaviour. Offshore wind is a very popular technology, over 80% of the population support its use in the UK, compared to 2% which oppose (BEIS, 2022). Examples of similar seaside resorts in England which also have visibility of offshore turbines, such as Brighton Pier, have not seen a decline in visitor numbers as a result.

20.233 Changes to crossing times identified in **Chapter 14 Shipping and Navigation** have not been identified as a significant impact and are likely to be within the standard deviation of a journey time of this length and therefore likely to be acceptable to most passengers.

20.234 Therefore, the magnitude of any impact on the tourism economy has been assessed as **negligible adverse**.

### Significance of effect

20.235 The significance of any impact on the tourism economy is determined by the presence of any significant effects on specific markets or tourism assets that are key drivers of the tourism economy in that area.

20.236 Based on the assessment of both magnitude and sensitivity, the effect of the Project operation on the tourism economy was assessed as **negligible adverse** for the Local Economic Area (**Table 20.34**). Effects are not considered significant in EIA terms.

*Table 20.34 Significance of tourism economy effects in construction phase*

| | Blackpool tourism economy | Southport tourism economy | Local economic area tourism economy |
|---|---|---|---|
| Magnitude of impact | Negligible adverse | Negligible adverse | Negligible adverse |
| Sensitivity of receptor | Negligible | Low | Low |
| **Significance of effect** | **Negligible adverse** | **Negligible adverse** | **Negligible adverse** |

#### 20.6.2.7 Impact 5: Loss of, disruption to or pressure on recreational activities

20.237 Given the location of the windfarm site and the separation of 30km to receptors in the Local Economic Area no impacts have been identified whereby onshore activities would be disrupted as a result of the construction of the Project. However marine users including recreational sailors, divers and anglers have been assessed as part of **Chapter 17 Infrastructure and Other Users**. This found no significant effects on recreational boating, angling and diving.

### 20.6.3 Potential impacts during operation and maintenance

#### 20.6.3.1 Estimating operations and maintenance expenditure

20.238 The Project would generate economic impacts through the expenditure that would be required during its operations and maintenance phase, which is expected to last up to 35 years.

20.239 The economic impact assessment, including both the GVA that would be generated and the employment that would be supported, has therefore been based on estimates of the expenditure that would be required.

20.240 The scope of this assessment is to consider the economic impacts associated with the Generation Assets (the Project). An analysis of the potential expenditure estimated that the annual costs associated with the operations and maintenance of the Generation Assets would be approximately £19 million per year.

#### 20.6.3.2 Estimating distribution of expenditure

20.241 The economic impacts from the operations and maintenance of the Project have been estimated for the Local Economic Area and the UK.

20.242 The primary operation and maintenance port(s) used to supply the Project have not been selected at this stage. For the purposes of this analysis, it has been assumed that it would be within the Local Economic Area. It is likely to be within the Local Economic Area because:

- There is an expectation that the primary operations and maintenance port would have quick access to the Project windfarm site
- The operation and maintenance port would require less depth and lay-down space than is required during the construction. Therefore, there are more ports within the area that are in a position to provide the necessary facilities

20.243 It is estimated that 59% of spending would occur in the Local Economic Area. It is assumed that all operations and maintenance activity would occur in the UK. The majority of this expenditure would be linked with the maintenance of the Project.

20.244 It is therefore estimated that the average annual expenditure from the operations and maintenance of the Project would be equivalent to:

- £11 million in the Local Economic Area
- £17 million in the UK

#### 20.6.3.3 Impact 1: Increase in GVA

##### Description of impact

20.245 In a similar way as for the construction phase, economic activity during the operations and maintenance phase would lead to changes in GVA within the Local Economic Area and UK context.

##### Sensitivity

20.246 The sensitivity of the economic receptors is discussed in **Section 20.6.1**. This assessment determined:

- Sensitivity of the economy of the Local Economic Area was **low**
- Sensitivity of the economy of the UK was **low**

##### Magnitude

20.247 The magnitude of the economic impact from the expenditure during the operations and maintenance phase has been estimated in line with the methodology outlined in **Section 20.6**. For the purposes of assessment, only the direct and indirect economic impacts are considered when determining the

magnitude of the impact. These capture the economic activity required to realise the Project, including the spending by the Applicant and its primary contractors (direct impacts) as well as supply chain expenditure (indirect impacts). On this basis, it is standard practice for similar assessments to focus on these impacts.

20.248 The induced impacts are quantified and presented for completeness but have not been used in the assessment of magnitude, in line with the definitions of impact used in other stages of the development of an offshore wind project in the UK, such as Contracts for Difference Supply Chain Plans.

20.249 Based on these levels of spending outlined in **Section 20.6.3.2**, it was possible to estimate that during each year of its operations the Project could generate a total (inclusive of direct and supply chain impacts) (**Table 20.35**):

- £6 million GVA in the Local Economic Area
- £12 million GVA across the UK

*Table 20.35 Operations and maintenance: Total GVA*

| | Local Economic Area | UK |
|---|---|---|
| Direct GVA (£m) | 4 | 6 |
| Indirect GVA (£m) | 2 | 6 |
| **Total GVA (£m)** | **6** | **12** |
| Induced GVA (£m) | 2 | 4 |
| *Total Including Induced GVA (£m)* | **8** | **16** |

20.250 In addition to the direct and supply chain impacts, the operations and maintenance of the Project would support economic activity through the spending of those carrying out the works (induced impacts). These benefits could amount to an extra £2 million GVA in the Local Economic Area, and £4 million GVA across the UK (**Table 20.36**).

20.251 On this basis, the GVA attracted by the Project is equivalent to less than 0.1% of the GVA of the Local Economic Area and of the UK GVA.

*Table 20.36 Operations and maintenance: Magnitude of GVA impact*

| | Local Economic Area | UK |
|---|---|---|
| GVA Impact (£m) | 6 | 12 |
| Current GVA of Study Area (2020, £m) | 62,660 | 1,949,000 |
| Peak GVA as % of Current GVA | <0.1% | <0.1% |
| **Magnitude of impact** | **Negligible** | **Negligible** |

20.252 In line with the approach outlined in **Table 20.5** the magnitude of impacts was assessed as **negligible beneficial** for the Local Economic Area and **negligible beneficial** for the UK.

## Significance of effect

20.253 Based on the assessments of sensitivity and magnitude, the effect of the Project operations and maintenance phase on the economy of the Local Economic Area was assessed as **negligible beneficial**. The effect on the economy of the UK was assessed as **negligible beneficial**. Effects are not considered significant in EIA terms (**Table 20.37**).

*Table 20.37 Operations and maintenance: Significance of GVA increase*

| | Local Economic Area | UK |
|---|---|---|
| Magnitude of impact | Negligible beneficial | Negligible beneficial |
| Sensitivity of receptor | Low | Low |
| **Significance of effect** | **Negligible beneficial** | **Negligible beneficial** |

## Consideration of adverse economic effects

20.254 **Chapter 13 Commercial Fisheries** concluded there would not be any significant effects on commercial fisheries during operation.

20.255 The analysis in **Chapter 14 Shipping and Navigation** found the Project would affect the Stena Line ferry route between Liverpool and Belfast, adding an additional 1.6nm to the overall route. These changes are unlikely to affect the viability of this route and commercial operation. Beyond this, there is no expectation adverse weather routes would be particularly affected by the Project. Full information is provided in **Chapter 14 Shipping and Navigation** which concluded there would not be any significant effects on shipping and navigation.

20.256 As a result of this, no significant effects on economic receptors are expected. No change is expected to occur with regard to visitors and passengers using

the ferry service and the overall tourism economy of Belfast and Northern Ireland.

#### 20.6.3.1 Impact 2: Increase in annual employment

##### Description of impact

20.257 The operations and maintenance of the Project would result in an increase in the turnover of those businesses supporting operational activities. Changes in turnover would support the jobs required to fulfil contracts.

20.258 The assessment of impacts on employment relies on the same assumptions that were adopted in the estimation of GVA impacts occurring during the operations and maintenance period.

##### Sensitivity

20.259 The sensitivity of the economic receptors is discussed in **Section 20.6.1**. This assessment determined:

- Sensitivity of the economy of the Local Economic Area was **Low**
- Sensitivity of the economy of the UK was **Low**

##### Magnitude

20.260 Based on operations and maintenance activity, it was possible to estimate that during each year of its operations the Project could support (**Table 20.38**):

- 80 direct and indirect jobs in the Local Economic Area
- 140 direct and indirect jobs across the UK

*Table 20.38 Operations and maintenance: total employment*

| | Local Economic Area | UK |
|---|---|---|
| Direct Employment (Jobs) | 50 | 70 |
| Indirect Employment (Jobs) | 30 | 70 |
| **Total Employment (Jobs)** | **80** | **140** |
| Induced Employment (Jobs) | 30 | 50 |
| *Total employment including induced employment* | *110* | *190* |

20.261 In addition to the direct and supply chain impacts considered above, the operation and maintenance of the Project would support economic activity through the spending of those it employs (induced impacts). These benefits could amount to an extra 30 jobs in the Local Economic Area and 50 jobs across the UK.

20.262 The level of employment supported is less than 0.1% of total employment in the Local Economic Area and the UK (**Table 20.39**).

*Table 20.39 Operations and maintenance: magnitude of employment impact*

| | Local Economic Area | UK |
|---|---|---|
| Jobs Impact | 80 | 140 |
| Current total Jobs in Study Area | 1,168,035 | 31,326,550 |
| Peak Jobs as % of Current Jobs | <0.1% | <0.1% |
| **Magnitude of impact** | **Negligible** | **Negligible** |

20.263 On this basis, magnitude was assessed as **negligible** beneficial for the Local Economic Area, and negligible beneficial for the UK.

### Significance of effect

20.264 Based on the assessment of magnitude and sensitivity, the effect of the Project on employment during its operations and maintenance was assessed as **negligible beneficial** for the Local Economic Area and **negligible beneficial** for the UK. Effects are not considered significant in EIA terms (**Table 20.40**).

*Table 20.40 Significance of operations and maintenance employment increase*

| | Local Economic Area | UK |
|---|---|---|
| Magnitude of impact | Negligible beneficial | Negligible beneficial |
| Sensitivity of receptor | Low | Low |
| **Significance of effect** | **Negligible beneficial** | **Negligible beneficial** |

### Consideration of adverse employment effects

20.265 Based on the analysis in **Chapter 13 Commercial Fisheries,** there is no expectation of any significant impacts on the employment supported by commercial fisheries during the operations and maintenance of the Project.

20.266 As set out in **Section 20.6.3.3**, **Chapter 14 Shipping and Navigation** found no significant effects on shipping and navigation activity, with operations remaining viable. Therefore, there is no expectation of significant impacts on the employment supported by shipping and navigation.

### 20.6.3.2 Impact 3: Community and social assets impacts

20.267 While the operations and maintenance port(s) that would be used to support the Project has not been selected at this stage, it is assumed to be within the Local Economic Area. The increase in employment as a result of the Project during the operations and maintenance phase may lead to pressure on housing supply and community services. Given the negligible level of

employment identified no significant effects are anticipated in the Local Economic Area. It is also considered that port workers would largely be within a commutable distance from the port.

20.268 Based on the level of employment that may be supported by construction, effects have been assessed as **negligible adverse** for the Local Economic Area.

#### 20.6.3.3 Impact 4: Tourism economy

##### Description of impact

20.269 The changes in the surrounding environment brought about by the Project could at least in theory have an impact on the tourism economy of the Local Economic Area.

20.270 As per construction, the existence of changes in the surrounding environment, in and of themselves do not mean that changes to the tourism economy would occur. For there to be an impact on the tourism economy, each of the following conditions should be met:

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

20.271 As set out within the baseline, evidence suggested that there was no direct relationship between offshore wind developments and the tourism economy. Furthermore, offshore windfarms or lack thereof are not considered as a key determinant of the tourism economy (key factors include tourism offer marketing, exchange rates and economic conditions) (South West Research Company, 2013).

##### Sensitivity

20.272 The tourism economy across the Local Economic Area is varied, with multiple markets and assets which attract visitors. This includes the city break attractions of Liverpool, the traditional seaside resorts of Blackpool and Southport and the countryside attractions of the Lake District. The sensitivity of these receptors is considered above in **Sections 20.6.1.3** and **20.6.1.4**. As a result, the sensitivity of the overall tourism economy has been assessed as **low**.

### Magnitude

20.273 **Chapter 18 SLVIA** has identified potentially significant effects that may impact on key tourism receptors in the Local Economic Area, specifically viewpoints from Blackpool and Southport.

20.274 The visitors, or potential visitors, may be aware of the visual impacts that are described because they would be able to see the Project at these destinations. However, it is unlikely that visitors, or potential visitors, would react to these views by changing their behaviour. In both locations, the seaward views are not the primary reason for visiting, which is either shopping, as in Southport, or the wide variety of attractions, as in Blackpool. In addition, there is no evidence that the visibility of offshore WTGs from these locations would lead to changes in behaviour. Offshore wind is a very popular technology, over 80% of the population support its use in the UK, compared to 2% which oppose its use (BEIS, 2022). Examples of similar seaside resorts in England which also have visibility of offshore turbines, such as Brighton Pier, have not seen a decline in visitor numbers as a result.

20.275 Therefore, the magnitude of any impact on the tourism economy has been assessed as **negligible adverse**.

### Significance of effect

20.276 The significance of any impact on the tourism economy would be determined by the presence of any significant effects on specific markets or tourism assets that are key drivers of the tourism economy in that area.

20.277 Based on the assessment of both magnitude and sensitivity, the effect of the Project operation on the tourism economy has been assessed as **negligible adverse** for the Local Economic Area (**Table 20.41**). Effects are not considered significant in EIA terms.

*Table 20.41 Significance of tourism economy effects*

| | Blackpool Tourism Economy | Southport Tourism Economy | Local Economic Area Tourism Economy |
|---|---|---|---|
| Magnitude of impact | Negligible adverse | Negligible adverse | Negligible adverse |
| Sensitivity of receptor | Negligible | Low | Low |
| **Significance of effect** | **Negligible adverse** | **Negligible adverse** | **Negligible adverse** |

### 20.6.3.4 Impact 5: Loss of, disruption to or pressure on recreational activities

20.278 Given the location of the windfarm site and the separation of 30km to receptors in the Local Economic Area, no impacts have been identified whereby onshore activities would be disrupted as a result of the operation and maintenance

phase of the Project. Potential impacts on marine users including recreational sailors, divers and anglers have been assessed as part of **Chapter 17 Infrastructure and Other Users**.

### 20.6.4 Potential impacts during decommissioning

20.279 As the number of offshore wind developments that have undergone decommissioning to date is limited, there is no substantial evidence on which to assess the potential impacts occurring during this phase.

20.280 The scale of works involved at sites that have been decommissioned is also not representative of what may happen with developments of the scale of the Project.

20.281 Estimates by BVG Associates (BVG Associates, 2019) stated that offshore wind projects could spend £330,000 per MW decommissioning projects, of which £120,000 per MW would be associated with the Generation Assets. This would suggest that the decommissioning of the Project could require £58 million of expenditure.

20.282 On this basis, it was considered that decommissioning could result in impacts similar in scale to those taking place during the construction period with regard to installation works. The primary decommissioning port has not been selected at this stage. For the purposes of this analysis, to be conservative the assessment considered the decommissioning port in the context of the wider UK.

20.283 Therefore, no economic activity associated with decommissioning has been attributed to the Local Economic Area at this stage. Across the UK, the Applicant has estimated that decommissioning activity for the Project could generate £22 million GVA across the UK. Similarly, it may result in up to 350 years of employment across the UK.

20.284 The assessment of magnitude is determined by the peak economic activity, and it was therefore assumed that decommissioning would occur over a two-year period.

20.285 The magnitude of all impacts has been assessed as **negligible beneficial**. It is assumed that the sensitivity of the economies of the UK and the Local Economic Area are the same as current at the point of decommissioning (both with low sensitivities) (**Table 20.42**).

*Table 20.42 Decommissioning: magnitude of economic (employment and GVA impacts)*

| | Local Economic Area | UK |
|---|---|---|
| **Magnitude of employment impacts** | | |
| Peak Employment (Jobs) | n/a | 170 |
| Current Jobs | n/a | 31,326,550 |
| Peak Jobs as % Current Jobs | n/a | <0.1% |
| **Magnitude of Impact** | **Negligible beneficial** | **Negligible beneficial** |
| **Magnitude of GVA Impacts** | | |
| Peak GVA Impact Discounted (£m) | n/a | 11 |
| Current GVA of Study Area (2020, £m) | n/a | 1,949,600 |
| Peak GVA as % Current GVA | n/a | <0.1% |
| **Magnitude of Impact** | **Negligible beneficial** | **Negligible beneficial** |

20.286 Therefore, in line with the approach outlined in **Table 20.13**, the effect of decommissioning activity on economic activity (GVA and employment) was assessed as **negligible beneficial** in the Local Economic Area and as **negligible beneficial** across the UK. Effects are not considered significant in EIA terms.

20.287 Similarly, based on the level of employment that may be supported by decommissioning, effects on demographics, accommodation availability and social infrastructure were assessed as **negligible adverse** for the Local Economic Area. Effects are not considered significant in EIA terms.

## 20.7 Cumulative effects

20.288 In order to undertake the CEA, and as per the PINS advice note (PINS, 2019), the potential for cumulative effects has been established considering each Project-alone effect (and the Zone of Influence (ZoI) of each impact) alongside the list of other plans, projects and activities that could potentially interact. These stages are detailed below.

### 20.7.1 Identification of potential cumulative effects

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

20.290 Part of the cumulative assessment process was the identification of which individual impacts assessed for the Project have the potential for a cumulative effect on receptors (impact screening). This information is set out in **Table 20.43**. Screening considered the ZoI of the impacts and the plans and projects identified in **Table 20.44** (presented in **Figure 20.1**). Impacts for which the significance of effect is assessed in the Project-alone assessment as '**negligible**', or above, have been considered in the CEA screening (i.e. only those assessed as 'no change' were not taken forward as there was no potential for them to contribute to a cumulative effect).

*Table 20.43 Potential cumulative effects (screening)*

| Impact | Project-alone residual effects significance | Potential for cumulative impact | Rationale |
|---|---|---|---|
| **Construction phase** | | | |
| Impact 1: Increase in GVA | Negligible beneficial | 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 GVA supported by each project. |
| Impact 2: Increase in employment | Negligible beneficial | 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: Community and social assets | Negligible beneficial | Yes | Multiple developments could increase pressure on community assets |
| Impact 4: Tourism economy | Negligible adverse | Yes | Tourism activities could be affected if construction activity had an impact on access to tourism destinations. |
| Impact 5: Loss of, disruption to or pressure on recreational activities | Offshore only as there are no onshore effects, marine recreation has been assessed in **Chapter 17 Infrastructure and Other Users.** | | |
| **Operation and maintenance phase** | | | |
| Impact 1: Increase in GVA | Negligible beneficial | Yes | Operational activity associated with multiple projects has the potential to create a stream of economic activity within the locations chosen as operation and maintenance port(s). |
| Impact 2: Increase in annual employment | Negligible beneficial | Yes | Operational activity associated with multiple projects has the potential to create permanent employment within the locations chosen as operation and maintenance port(s). |

| Impact | Project-alone residual effects significance | Potential for cumulative impact | Rationale |
|---|---|---|---|
| | | | In addition, local specialisation and clusters may lead to re-skilling and up-skilling of local populations. |
| Impact 3: Community and social assets impacts | Negligible adverse | Yes | Multiple developments could increase pressure on community assets |
| Impact 4: Tourism economy | Negligible adverse | Yes | The presence of multiple offshore developments may lead to changes in visitors' behaviour, with repercussions on the tourism economy.<br>That said, the evidence available on this subject suggested that similar impacts are unlikely. |
| Impact 5: Loss of, disruption to or pressure on recreational activities | Offshore only as there are no onshore effects, marine recreation has been assessed in **Chapter 17 Infrastructure and Other Users.** | | |
| **Decommissioning phase** | | | |
| Detailed planning with respect to decommissioning would take place at a later date. The cumulative impact would depend on how practices around decommissioning would change over the next thirty years or so.<br>In line with the approach followed throughout this assessment, it has been assumed that the cumulative effects from decommissioning would be either smaller or similar to the cumulative effects from the construction of multiple projects. | | | |

### 20.7.2 Identification of other plans, projects and activities

20.291 The CEA considers those similar developments, as per **Table 20.44**, that are located off the coast of the North West of England, North Wales and the Isle of Man as having the potential for cumulative effects on the Local Economic Area.

20.292 All projects considered for CEA across all topics have been identified within **Appendix 6.1 CEA Project Long List** (Document Reference 5.2.6.1), which forms an exhaustive list of plans, projects and activities relevant to the Project.

*Table 20.44 Summary of projects considered for the CEA in relation to socio-economics, tourism and recreation*

| Project | Status (at the time of assessment) | Construction period | Closest distance from the Project (km) | Screened into the CEA? (Y/N) | Rationale |
|---|---|---|---|---|---|
| Morgan and Morecambe Offshore Wind Farms: Transmission Assets | Pre-application stage. PEIR published in October 2023. | 2026 – 2029 | 0 (adjacent) | Y | Combined employment supported by the construction of offshore and onshore elements. Multiple developments could disrupt marine recreational activities. |
| Mona Offshore Wind Project | Pre-application stage. PEIR published in 2023. | 2026 – 2029 | 10.0 | Y | Potential cumulative benefits on supply chains. Multiple developments could disrupt marine recreational activities, commercial fisheries and shipping. |
| West of Duddon Sands Offshore Wind Farm | Operational | N/A | 12.9 | Y | Potential cumulative benefits on operational and maintenance businesses. |
| Morgan Offshore Wind Project Generation Assets | Pre-application stage. PEIR published in 2023. | 2026 – 2029 | 16.7 | Y | Potential cumulative benefits on supply chains. Multiple developments could disrupt marine recreational activities, commercial fisheries and shipping. |
| Walney Extension IV Offshore Windfarm | Operational | N/A | 18.8 | Y | Potential cumulative benefits on operational and maintenance businesses. |
| Barrow Offshore Wind Farm | Operational | N/A | 21.0 | Y | Potential cumulative benefits on operational and maintenance businesses. |

| Project | Status (at the time of assessment) | Construction period | Closest distance from the Project (km) | Screened into the CEA? (Y/N) | Rationale |
|---|---|---|---|---|---|
| Ormonde Offshore Windfarm | Operational | N/A | 27.0 | Y | Potential cumulative benefits on supply chains. |
| Awel y Môr Offshore Wind Farm | Consent granted 2023. | 2027 – 2030 | 28.9 | Y | Potential cumulative benefits on supply chains. |
| Gwynt y Môr Offshore Wind Farm | Operational | N/A | 28.9 | Y | Potential cumulative benefits on operational and maintenance businesses. |
| Burbo Bank Extension Offshore Wind Farm | Operational | N/A | 29.1 | Y | Potential cumulative benefits on operational and maintenance businesses. |
| North Hoyle Offshore Wind Farm | Operational | N/A | 36.3 | Y | Potential cumulative benefits on operational and maintenance businesses. |
| Rhyl Flats | Operational | N/A | 40.0 | Y | Potential cumulative benefits on operational and maintenance businesses. |
| Mooir Vannin Offshore Wind Farm | Pre-application stage. Scoping submitted 2023. | 2030-32 | 43.7 | Y | Potential cumulative benefits on operational and maintenance businesses. Multiple developments could disrupt marine recreational activities, commercial fisheries and shipping. |

### 20.7.3 Assessment of cumulative effects

20.293 Having established the residual effects from the Project with the potential for a cumulative effect, along with the other relevant plans, projects and activities, the following sections provide an assessment of the level of cumulative effect that may arise. These are detailed below per impact where the potential for cumulative effects have been identified (in line with **Table 20.43**).

20.294 Given the interconnected nature of the Project and the Transmission Assets, a separate 'combined' assessment of these is provided within the CEA (**Section 20.7.3.1**). Thereafter, the cumulative assessment considers all plans, projects and activities screened into the CEA **Section 20.7.3.2**.

#### 20.7.3.1 Cumulative assessment – the Project and Transmission Assets (combined assessment)

20.295 While the Transmission Assets[7] are being considered in a separate ES as part of a separate DCO application (combined with the Morgan Offshore Wind Project transmission assets), given the functional link, a 'combined' assessment has been made considering both the Project and Transmission Assets for the purposes of cumulative assessment. This provides an assessment including impact interactions and additive effects and thus any change in the significance of effects as assessed separately.

20.296 As the Transmission Assets includes infrastructure associated with both the Project and the Morgan Offshore Wind Farm Project Generation Assets, it should be noted that the 'combined assessment' considers the transmission infrastructure for both the Project and the Morgan Offshore Wind Farm Project Generation Assets. As not all the activity from the Project and the Morgan Offshore Wind Farm Project Generation Assets would be linked to the Project, cumulative impacts presented below constitute an overestimate.

20.297 The Transmission Assets PEIR (Morgan Offshore Wind Limited and Morecambe Offshore Windfarm Ltd, 2023) informed the assessment.

20.298 The total economic impact from the construction and development of the Transmission Assets was estimated as:

- £20 million GVA and 250 years of employment in the sub-regional area hosting onshore works

[7] As the Transmission Assets includes infrastructure associated with both the Project and the Morgan Offshore Wind Project Generation Assets, it should be noted that the combined assessment considers the transmission infrastructure for both the Project and the Morgan Offshore Wind Project Generation Assets (and includes all infrastructure as described in the Transmission Assets PEIR).

- £11 million GVA and 140 years of employment in North Wales
- £34 million GVA and 400 years of employment across the North West of England

20.299 Onshore activity during the operations and maintenance phase was expected to result in an annual impact of £2 million GVA and 60 jobs.

20.300 Consequently, the total impact associated with the construction of the Project and Transmission Assets, was estimated as £79 million GVA and 960 years of employment.

20.301 In a similar way, it was estimated that during the operations and maintenance the combined impact from the Project and Transmission Assets could be up to £10 million GVA and 170 jobs.

20.302 Both the construction and operational cumulative impacts associated with the Transmission Assets and the Project are an overestimate since they consider the Transmission Assets in their entirety.

20.303 **Table 20.45** provides the combined assessment. Given the separation of the majority of assets between the Project (offshore) and Transmission Assets (onshore and nearshore) and considering limited overlap and type of offshore works for the Transmission Assets, effects were considered to remain as assessed by each Project-alone.

*Table 20.45 Summary of impacts from the Project and Transmission Assets alone and combined (note: wording of impacts has been summarised to encompass both projects)*

| Impact | Transmission Assets significance of effect | Project significance of effect | Combined assessment |
|---|---|---|---|
| **All phases** | | | |
| Increase in GVA, and effects on economic receptors | Minor to moderate beneficial | Negligible beneficial | There are additive beneficial effects from both projects connected to an overall increase in investment in the economic study area. However, the cumulative significance of these impacts is not considered to be elevated beyond those individually assessed. There is limited interaction of adverse effects given the largely spatially separate infrastructure of the projects |
| Increase in employment | Negligible beneficial | Negligible beneficial | |
| Community and social assets impacts | Negligible to minor beneficial | Negligible adverse | |
| Impacts on tourism and recreation | Negligible to minor adverse | Negligible adverse | |
| Impacts on recreation | N/A | No Impact on onshore receptors | No combined effect on onshore recreation. A combined assessment of marine recreational users is provided in **Chapter 17 Infrastructure and Other Users**. |

### 20.7.3.2 Cumulative assessment - All plans and projects

20.304 Based on both the impacts (**Table 20.43**) and other plans and projects (**Table 20.44**) identified, where required, a detailed cumulative assessment has been undertaken considering all relevant information from the Project and other plans and projects (including the Transmission Assets).

#### Cumulative Impact 1a: Increase in GVA during construction

20.305 The construction (and operation of existing projects) of several offshore wind developments is expected to have implications beyond the impact of each of

the projects considered on its own terms. This is because a pipeline of developments reduces the risks of investment.

20.306 In this way, the construction of multiple projects is expected to lead to an increase in their existing activity or to the creation of new business ventures. The presence of a stronger supply chain means that each project can then source more of its contracts regionally or within the UK, leading to higher economic impacts.

20.307 The Applicant and other developers can play a pro-active role in facilitating this process by engaging with businesses in the regions, where they plan to invest. For the benefits from the construction and development of multiple developments to be realised in full, a level of coordination between different projects may be required to avoid periods of peak activity, resulting in shortages across other economic sectors.

### Consideration of adverse economic effects

20.308 Considering adverse effects, **Chapter 13 Commercial Fisheries** found moderate (significant) cumulative effects on the UK dredge fishery and UK potting fleets arising from reduced access or exclusion from existing grounds. Similarly, the assessment found moderate (significant) effect from the displacement or disruption of UK and Isle of Man dredge and demersal otter trawl (scallop) fishery during construction. However, the individual contribution to these cumulative effects from the Project is considered low.

20.309 The Project has implemented mitigation for the fishing operators relevant to the Project and the cumulative effects would not be driven by the Project. Significant negative effects would remain in the absence of the Project. It is expected that other projects would also adopt suitable mitigations.

20.310 **Chapter 14 Shipping and Navigation** focuses on operational effects given their long-term duration (see below). It is expected any cumulative effects during construction would be of similar or lower significance.

20.311 As a result of this, no significant effects on economic receptors are expected.

### Cumulative Impact 1b: Increase in GVA during operations and maintenance

20.312 The operations and maintenance of several developments is expected to have implications beyond the impact of each of the projects as considered on its own terms. This is because the presence of multiple projects would facilitate the emergence of the skills required for this phase of a development's lifetime.

20.313 The operations and the generation activities from a series of offshore wind developments would also contribute towards broader changes across the UK economy. For instance, it would have a role in facilitating the transition of the UK economy towards net zero and increase energy security.

### Consideration of adverse economic effects

20.314 **Chapter 14 Shipping and Navigation** found no significant cumulative effects, however, there would be additive effects across the region which are further detailed in the regional cumulative assessment (**Appendix 14.2**). The contribution from the Project to this cumulative effect was deemed low. Control measures have been put in place to minimise residual operational effects. It is noted, however, that the Applicant has established direct communications with impacted operators to discuss appropriate ways to manage the residual operational impacts.

20.315 As a result of this, no significant effects on economic receptors are expected.

### Cumulative Impact 2a: Increase in employment during construction

20.316 In a similar way as the construction and operation of multiple developments can lead to the realisation of higher levels of spending, so it can support higher levels of employment. As regional and national businesses can capture a higher level of spending, they can support their operations by increasing their levels of employment.

20.317 The Applicant, and other developers, can play a role in facilitating this process by engaging with businesses and regional educational providers to ensure the right skill levels are available. To avoid any labour shortages, a degree of coordination between different projects may be required. Towards this end, the Applicant is developing a Skills and Employment Plan. An Outline (Document Reference 6.11) has been provided as part of the DCO Application.

### Cumulative Impact 2b: Increase in annual employment during operation and maintenance

20.318 In a similar way as the operations of multiple developments can lead to the realisation of higher levels of spending, so it can support higher levels of employment. As regional and national businesses can capture a higher level of spending, they can support their operations by increasing their levels of employment.

20.319 The operations and generation activities of multiple offshore wind developments will facilitate the UK economy's transition towards net zero. In this way, it will underpin the electrification of the UK economy. This may result in the creation of green and high skills jobs across a range of sectors that are not necessarily linked to electricity generation.

### Cumulative Impact 3: Impacts on community and social assets during construction

20.320 In a similar way as the construction of multiple developments can lead to the realisation of higher levels of spending, so it can support higher levels of

employment and therefore worker influx. This in turn could lead to pressure on social and community assets.

20.321 The development of multiple offshore wind projects in this area will generate long term economic opportunities for employment. As a result, there could be a reduced need for a transient workforce and the taxes paid as a result of these developments could support the sustainability and reactiveness of the community and social assets in the Local Economic Area.

### Cumulative Impact 4: Changes in tourism activity during construction and operation

20.322 The construction and presence of multiple developments could result, at least in theory, in changes to the seascape and to existing marine recreational activities. This would be the case, if cumulatively, developments were to affect the seascape.

20.323 Based on the available evidence on the relationship between wind farms and tourism activity, it is unlikely that the presence of multiple developments will result in any adverse impacts.

20.324 The presence of multiple developments could potentially result, in changes to the seascape and cause cumulative effects. However, the SLVIA (**Chapter 18 SLVIA**) has not identified cumulative effects beyond project alone effects and as such no significant effects on tourism are expected. It is also noted that positive effects can also be attributed to tourism. For example, there are sightseeing tours to the Rampion and Thanet Wind Farms.

20.325 Cumulative effects on marine recreational users have been assessed in **Chapter 17 Infrastructure and Other Users**. As set out above, moderate cumulative effects on ferries have been identified in **Chapter 14 Shipping and Navigation**.

20.326 Cumulative effects on ferry routes served by the Isle of Man Steam Packet Company are considered in **Section 20.8.3**.

### Summary

20.327 Additive effects between all projects considered in the cumulative assessment have been identified. This translates into:

- Beneficial effects – Additive effects are considered to increase opportunities for beneficial effects through an increase in GVA and jobs. Given the stages of the projects, it is considered too early to determine if there could be increased significance of effects and as such effects have been (precautionarly) assessed as per Project-alone
- Adverse effects – Cumulative adverse effects on commercial fisheries and shipping and navigation have been considered in detail in **Chapters 13**

**Commercial Fisheries** and **Chapter 14 Shipping and Navigation**. While there could be additive effects, given the mitigations applied by the projects, there were no identified significant effects on economic receptors

## 20.8 Transboundary effects

20.328 **Chapter 13 Commercial Fisheries** considers in detail effects to Isle of Man, Irish and Belgium fleets.

20.329 **Chapter 14 Shipping and Navigation** considers ferry routes to the Isle of Man and Ireland. Given the result of the regional assessment in **Chapter 14 Shipping and Navigation** and **Appendix 14.2,** an assessment has been provided for the Isle of Man (noting the IoM is not a European Economic Area (EEA) state, but a self-governing British Crown Dependency).

### 20.8.1 Baseline environment – Isle of Man

20.330 The Isle of Man is located around 25km from the Scottish coastline and approximately 50km from the English Coast. Based on its 2021 Census, the Isle of Man had a total population of 81,797 (Gov.im, 2022).

20.331 Visitors arrive to the Isle of Man either by ferry or flight. In 2019, the latest year for which statistics on visitors were not affected by the Covid-19 pandemic, a total 537,000 visitors reached the Isle of Man by ferry (Maritime Statistics, 2022). In the same year, a total 865,617 passengers came to the Isle of Man by aeroplane (Isle of Man Today, 2020). Based on 2018 data, visitors to the Isle of Man spent on average £630 per visit.

20.332 The ferry service to the Isle of Man is operated by the IoMSPC, which is owned by the Isle of Man Government. This provider serves four routes:

- Douglas to Heysham
- Douglas to Liverpool
- Douglas to Belfast
- Douglas to Dublin

20.333 As a result of the Covid-19 pandemic, restrictions on leisure travel and the need to provide lifeline services, the IoMSPC posted losses of more than £10.5 million in 2020 and of £3.2 million in 2021 (BBC, 2023). As restrictions on movement were progressively eased, the company returned to profitability in 2022, with overall profits of £11 million. Investment in the new Manxman ferry is set to improve capacity and the reliability of service by maintaining scheduled crossings in adverse weather conditions.

20.334 Services to Ireland are based on public service obligation and were expected to account for 108 sailings in 2023; as a result, most of the IoMSPC's activity is focussed on the English ports it serves (IoMSPC, 2023). The ferry link

between Douglas and Liverpool accounted for 48% of visitors arriving to the Isle of Man by ferry (259,000) or 18% of total visitors to the Isle of Man. A total of 286,000 visitors (53% visitors arriving to the Isle of Man by ferry and 20% of all visitors) came via the Heysham ferry. There is a direct flight link from Liverpool, with flight duration of 40 minutes.

20.335 As of 2021 (note, information may be affected by the Covid-19 pandemic), tourism accommodation employed 576 people across the Isle of Man with a further 2,056 employed in catering and other entertainment (The Isle of Man Government, 2023). The sectors accounted for 1% and 5% of total employment respectively.

20.336 Based on latest data on trade from the UK to the Isle of Man, it was estimated that the Isle of Man in the year to Q2 2023 imported £922 million in goods and services from the UK, while exporting a total £432 million (Department for Business and Trade, 2023). Only 0.3% or £3 million of UK exports to the Isle of Man were goods.

## 20.8.2 Assessment of potential Project-alone effects on the Isle of Man

20.337 Consideration of transboundary effects on the Isle of Man focuses on the following dimensions:

- effect on visitors and passengers using the ferry services
- effect on the attractiveness of the Isle of Man to visitors
- effect on security of supplies

20.338 These effects are all indirect, that is, they depend on how the Project affects shipping and navigation. On this basis, this section has been drafted following review of the findings from **Chapter 14 Shipping and Navigation**.

20.339 In line with a worst-scenario approach, the assessment has been undertaken with respect to activity during operations and maintenance. This is because impacts on routeing are considered greatest during the operational phase when a windfarm is fully built.

20.340 This section considers effects associated with the Project, whereas cumulative effects are considered in **Section 20.8.3**.

### 20.8.2.1 Sensitivity of receptors

20.341 The sensitivity of two receptors is considered:

- the tourism economy of the Isle of Man
- the socio-economy of the Isle of Man

20.342 Visitors have access to the Isle of Man by flight or ferry. Accounting for the importance of the ferry links (as strategic lifeline routes), the tolerance of delays by visitors and the availability of alternative travel modes, the sensitivity of the tourism economy to any changes in journey times has been assessed as **low**.

20.343 As a small island, the Isle of Man's economy is reliant on stable shipping links for critical supplies. In addition, connectedness is important in ensuring the Island remains an attractive place whether to live and work. The island economy is familiar with the potential for adverse weather and other shipping issues to cause supply chain issues. Therefore, both the public and private sectors on the island have taken actions to reduce the dependency on day-to-day deliveries. This has included the expansion of retail storage to hold a greater amount of stock on the island. For this reason, the sensitivity of the Isle of Man's socio-economy was assessed as **low**.

#### 20.8.2.2 Effect on visitors and passengers using the ferry services

20.344 The presence of an offshore wind development can affect the ability of ferry operators to use existing routes. This can affect journey times, with impacts on visitors and passengers using those services. Under a worst-case scenario, marginal changes in travelling times could result in cancellations.

20.345 Taking a worst-case assessment from **Chapter 14 Shipping and Navigation** for both construction and operational phases of the Project, no increase in journey distance would be recorded for ferries to the Isle of Man from Liverpool or Heysham. However, for the Liverpool to Douglas IoMSPC route, a small number of vessels (approximately 6%) on this route would pass through the south-western corner of the windfarm site. These vessels would be required to navigate to the southwest of the site, along the primary route.

20.346 Changes to crossing times are likely to be within the standard deviation of a journey time of this length and therefore likely to be acceptable to most passengers. For this reason, the magnitude of impact on journey times was assessed as **negligible (adverse)**.

20.347 Based on the relative magnitude of impact and sensitivity, the overall effect on visitors and passengers using the ferry services to the Isle of Man was assessed as **negligible (adverse).**

#### 20.8.2.3 Effect on the attractiveness of the Isle of Man as a place to visit

20.348 An increase in travelling times can have an impact on a destination's relative ability to attract visitors. For instance, in the short-term, an increase in ferry travelling times (if sizeable) and in cancellations could affect the relative use of sea and air transport.

20.349 Assuming flight provision was not altered to match demand, an increase in demand for air travel could put pressure on prices. Price effects could, in turn, reduce the attractiveness of the Isle of Man as a place to visit. This is only expected to apply in the short-term, since in the long term, provision of travel through different services is expected to align with relative demand for them.

20.350 The changes in journey times expected as a result of the Project are such that it is unlikely reaching the Isle of Man by ferry would be more complicated than it currently is. Even accounting for pressures during peak periods, changes were not expected to affect existing demand for travel to the Isle of Man. For this reason, the impact of changes in journey times on the attractiveness of the Isle of Man as a place to visit was assessed as **negligible (adverse)**.

20.351 Considering magnitude of impact and sensitivity, the effect delays in ferry services may have on the attractiveness of the Isle of Man as a visitor destination was assessed as **negligible (adverse).**

#### 20.8.2.4 Effect on security of supplies

20.352 An island economy such as the Isle of Man relies on imports of goods coming from sea freight. A longer or less reliable route may result in the cancellation of services, which in the context of periods of bad weather may affect deliveries and security of supplies.

20.353 **Chapter 14 Shipping and Navigation** considers any potential effects on commercial shipping. The analysis found the Liverpool/East of Isle of Man route would experience the largest deviation (up to 2.4nm). Given its low use, any effect on commercial shipping including along this route was considered not significant. Furthermore, the Project is not expected to affect adverse weather routeing, and would cause no increase in journey time for the ferries routes to the Isle of Man.

20.354 Based on the long routes over which commercial vessels tend to operate, it was deemed unlikely that the Project would lead to cancellations to an extent capable of affecting security of supplies. For this reason, the magnitude of impact was assessed as **negligible (adverse)**.

20.355 Based on the sensitivity of the socio-economy of the Isle of Man and the magnitude of impact, the effect of the Project on security of supplies was assessed as **negligible (adverse)**.

### 20.8.3 Cumulative shipping and navigation transboundary effects

20.356 The assessment also considers potential cumulative effects on the Isle of Man associated with the construction and operation of the projects considered in **Section 20.7.3**. This is based on the findings from **Chapter 14 Shipping and**

**Navigation** and how they would impact the socio-economy and visitor economy of the Isle of Man.

20.357 **Chapter 14 Shipping and Navigation** found a moderate adverse (significant) effect associated with cumulative impacts on ferry routeing. The assessment estimated an increase in transit times in adverse weather of 13 minutes on top of an existing delay of between 10 and 33 minutes to the IoMSPC ferries from Liverpool to Douglas. Similarly, an increase in transit times of 24 minutes was expected over the Heysham to Douglas route on top of an existing delay of between 10 and 23 minutes, mostly as a result of the Morgan Array Area. The assessment noted these effects are primarily driven by the Morgan Offshore Wind Project and Mona Offshore Wind Project as opposed to the Project.

20.358 The greatest cumulative impact is related to the increased likelihood of cancellations due to adverse weather relative to the current level of cancellations due to adverse weather. Any increase is expected to be the result of the location of cumulative projects, rather than the location of the Project.

20.359 An unacceptable navigation risk between the Mooir Vannin Offshore Windfarm and the Morgan Offshore Wind Project was identified but has no interaction with the Project.

20.360 No significant cumulative effects were found with regard to commercial vessels. This is mostly because of the less frequent use of affected routes and the relatively minor impact of delays on overall operations of those vessels within the context of their journeys.

20.361 Based on the evidence from **Chapter 14 Shipping and Navigation** it is expected there would be no significant cumulative effects on visitors and passengers on the ferry service and on the ferry providers. Based on the evidence in **Chapter 14 Shipping and Navigation**, it is also concluded the contribution of the Project to these cumulative effects would be limited.

## 20.9 Inter-relationships

20.362 There are clear inter-relationships between the socio-economics, tourism and recreation and several other topics that have been considered within this ES. **Table 20.46** provides a summary of the principal inter-relationships and signposts to where those issues have been addressed in the relevant chapters.

*Table 20.46 Socio-economics, tourism and recreation inter-relationships*

| Topic and description | Related chapter | Where addressed in this chapter | Rationale |
|---|---|---|---|
| **Construction and decommissioning phase** | | | |
| Economic effects | **Chapter 13 Commercial Fisheries**<br><br>**Chapter 14 Shipping and Navigation** | Reference is made in **Section 20.6.2** to economic effects if impacts were identified in other chapters | Potential disruption and associated economic and employment effects. |
| Seascape | **Chapter 18 SLVIA** | Reference is made in **Section 20.6.2.** | Potential visual impacts affecting tourism activity. |
| Marine recreation | **Chapter 17 Infrastructure and Other Users** | Reference is made in **Section 20.6.2** to recreation activities | Tourism has been assessed within this chapter and recreation has been considered, but marine recreation has been assessed in **Chapter 17 Infrastructure and Other Users** |
| **Operation and maintenance phase** | | | |
| Seascape | **Chapter 18 SLVIA** | Reference is made in **Section 20.6.3** | Potential visual impacts affecting tourism activity. |
| Economic effects | **Chapter 13 Commercial Fisheries**<br><br>**Chapter 14 Shipping and Navigation** | Reference is made in **Section 20.6.3** to economic effects if impacts were identified in other chapters | Potential disruption and associated economic and employment effects. |
| Marine recreation | **Chapter 17 Infrastructure and Other Users** | Reference is made in **Section 20.6.3** to recreation activities | Tourism has been assessed within this chapter and recreation has been considered, but marine recreation has been assessed in **Chapter 17 Infrastructure and Other Users**. |

## 20.10 Interactions

20.363 The impacts identified and assessed in this chapter have the potential to interact with each other. The areas of potential interaction between impacts are presented in **Table 20.47**. This provides a screening tool for which impacts have the potential to interact. The impacts have been assessed relative to

each development phase (i.e., construction, operations and maintenance, or decommissioning) to see if (for example) multiple construction impacts affecting the same receptor could increase the level of effect upon that receptor.

20.364 Following this, a lifetime assessment was undertaken, which considers the impact interactions identified, as well as effects on receptors across all development phases (**Table 20.48**).

20.365 This assessment has been carried out with respect to the Local Economic Area, since the largest effects on receptors were recorded at this level of geographical aggregation.

*Table 20.47 Interaction between impacts – screening (all phases)*

| | Potential interaction between impacts | | | |
|---|---|---|---|---|
| | Impact 1: Increase in GVA | Impact 2 Increase in employment | Impact 3 Community and social assets impacts | Impact 4 and 5 Impacts on tourism and recreation |
| Impact 1: Increase in GVA | - | Yes | Yes | Yes |
| Impact 2 Increase in employment | Yes | - | Yes | Yes |
| Impact 3 Community and social assets impacts | Yes | Yes | - | - |
| Impact 4 and 5 Impacts on tourism and recreation | Yes | Yes | - | - |

*Table 20.48 Interaction between impacts – phase and lifetime assessment*

| Receptor | Highest significance of effect level | | | | |
|---|---|---|---|---|---|
| | Construction | Operation | Decommissioning | Phase assessment | Lifetime assessment |
| Impact 1: Increase in GVA | Negligible Beneficial | Negligible Beneficial | Negligible Beneficial | No greater than individually assessed impact. | No greater than individually assessed impact. |
| Impact 2 Increase in employment | Negligible Beneficial | Negligible Beneficial | Negligible Beneficial | No greater than individually assessed impact. | No greater than individually assessed impact. |
| Impact 3 community and social assets impacts | Negligible Adverse | Negligible Adverse | Negligible Adverse | No greater than individually assessed impact. | No greater than individually assessed impact. |
| Impact 4 Impact on tourism activity | Negligible Adverse | Negligible Adverse | Negligible Adverse | No greater than individually assessed impact. | No greater than individually assessed impact. |
| Impact 5 Impacts on recreation | Assessment in **Chapter 17 Infrastructure and Other Users.** | | | | |

## 20.11 Potential monitoring requirements

20.366 Since the analysis identified positive benefits from the spending and employment supported by the Project's construction, and operations and maintenance, no mitigations measures were identified.

20.367 Should the Project apply for the Contracts for Difference (CfD) Allocation Round, there would be a requirement to produce a supply chain plan, setting out the supply chain content associated with the Project. Any commitments made under the supply chain plan would be monitored through evaluation of activity, including local and national content achieved.

20.368 Based on the insignificant effects associated with impacts on demographics, local and social infrastructure, no monitoring requirements have been identified.

## 20.12 Assessment summary

20.369 This chapter has considered the effects on socio-economics and tourism associated with the construction, operations and decommissioning of the Project.

20.370 The economic impact assessment found that during its construction, the Project could support a total:

- £14 million GVA and 170 years of employment in the Local Economic Area; and
- £360 million GVA and 4,870 years of employment across the UK.

20.371 Similarly, during its operation and maintenance, the Project could support each year a total:

- £8 million GVA and 110 jobs in the Local Economic Area; and
- £16 million GVA and 190 jobs across the UK

20.372 The effect of the construction and operation of the Project on GVA and employment, while beneficial, was not assessed as significant with respect to the Local Economic Area nor the UK. In addition, no significant effects were identified with respect to community and social assets, the tourism economy nor recreational activity. Overall, the assessment found the Project across all phases is expected to have no significant effects upon the receptors considered, including on those located on the Isle of Man.

20.373 Based on the analysis carried out in **Chapter 13 Commercial Fisheries** and **Chapter 14 Shipping and Navigation**, additive effects across the region are expected on some receptors, resulting in significant impacts on some fishing fleets and an unacceptable navigation risk between the Mooir Vannin Offshore Windfarm and the Morgan Offshore Wind Project. These translate into additive

economic effects on the fishery and shipping operators concerned but do not have a significant impact on socio-economic receptors. Given its position and size, the Project's contribution to these cumulative effects is considered to be limited/have no impact. Nonetheless, the Applicant is engaged with operators and other developers to ensure appropriate measures are in place to manage residual effects.

20.374 **Table 20.49** presents a summary of potential effects of the Project on socio-economics, tourism, and recreation.

*Table 20.49 Summary of potential impacts on socio-economics, tourism and recreation*

| Potential impact | Receptor | Sensitivity | Magnitude | Significance of effect | Additional mitigation measures proposed | Residual effect | Cumulative effect |
|---|---|---|---|---|---|---|---|
| **Construction and decommissioning phase** | | | | | | | |
| Impact 1: Increase in GVA | Economic Activity in the Local Economic Area | Low | Negligible beneficial | Not Significant (Negligible beneficial) | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial) |
| | Economic Activity in the UK | Low | Negligible beneficial | Not Significant (Negligible beneficial) | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial), |
| Impact 2: Increase in Employment | Economic Activity in the Local Economic Area | Low | Negligible beneficial | Not Significant (Negligible beneficial) | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial) |
| | Economic Activity in the UK | Low | Negligible beneficial | Not Significant (Negligible beneficial) | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial) |
| Impact 3: Community and Social Assets | Housing, educational and healthcare facilities in the Local | Low | Negligible adverse | Not Significant (Negligible adverse) | N/A | Not Significant (Negligible adverse) | Not Significant (Negligible adverse) |

| Potential impact | Receptor | Sensitivity | Magnitude | Significance of effect | Additional mitigation measures proposed | Residual effect | Cumulative effect |
|---|---|---|---|---|---|---|---|
| | Economic Area | | | | | | |
| Impact 4: Tourism economy | Tourism in the Local Economic Area | Low | Negligible adverse | Not Significant (Negligible adverse) | N/A | Not Significant (Negligible adverse) | Not Significant |
| Impact 5: Loss of, disruption to or pressure on recreational activities | Onshore recreational users | N/A | N/A | No Impact | N/A | No Impact | N/A – marine receptors assessed in **Chapter 17 Infrastructure and Other Users** |
| **Operations and maintenance phase** | | | | | | | |
| Impact 1: Increase in GVA | Economic Activity in the Local Economic Area | Low | Negligible | Not Significant (Negligible beneficial) | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial) |
| | Economic Activity in the UK | Low | Negligible | Not Significant (Negligible beneficial) | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial), |
| Impact 2: Increase in | Economic Activity in the Local | Low | Negligible | Not Significant | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial) |

| Potential impact | Receptor | Sensitivity | Magnitude | Significance of effect | Additional mitigation measures proposed | Residual effect | Cumulative effect |
|---|---|---|---|---|---|---|---|
| Annual employment | Economic Area | | | (Negligible beneficial) | | | |
| | Economic Activity in the UK | Low | Negligible | Not Significant (Negligible beneficial) | N/A | Not Significant (Negligible beneficial) | Not Significant (Negligible beneficial) |
| Impact 3: Community and social assets | Housing, educational and healthcare facilities in the Local Economic Area | Low | Negligible | Not Significant (Negligible adverse) | N/A | Not Significant (Negligible adverse) | Not Significant (Negligible adverse) |
| Impact 4: Tourism economy | Tourism Economy of the Local Economic Area | Low | Negligible | Not Significant (Negligible adverse) | N/A | Not Significant (Negligible adverse) | Not Significant (Negligible adverse), |
| Impact 5: Loss of, disruption to or pressure on recreational activities | Onshore recreational users | N/A | N/A | No Impact | N/A | No Impact | N/A – marine receptors assessed in **Chapter 17 Infrastructure and Other Users** |

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