

Hornsea 4



Hornsea Project Four: Preliminary Environmental Information Report (PEIR)

Volume 6, Annex 10.1: Socio- economics Technical Report

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Glossary

Term	Definition
Direct Employment and Gross Value Added	Employment and Gross Value Added which is associated with the first round of capital expenditure i.e. Hornsea Four's spend directly with prime contractors in each impact area.
Full-Time Equivalent Jobs (FTE Jobs)	The total number of jobs after converting jobs with less than full-time hours and jobs with more than full-time hours into full-time hour jobs. Where full-time hours are assumed to be 37.5 hours per week. (e.g. a job with 18.75 hours per week would be 0.5 Full-Time Equivalent jobs)
Gross Value Added (GVA)	The measure of the value of goods and services produced in an area, industry or sector of an economy. At the level of a firm, it is broadly equivalent to employment costs plus a measure of profit.
Indirect Employment and Gross Value Added	Employment and Gros Value Added which is associated with the suppliers of companies that supply goods and services as part of the supply chain of Hornsea Four.
Local Enterprise Partnership (LEP)	Voluntary partnerships between local authorities and businesses set up in 2011 by the Department for Business, Innovation and Skills to help determine local economic priorities and lead economic growth and job creation within the local area
Location Quotient (LQ)	The proportion of employment in a sector/industry in the Humber LEP area divided by that of the national average.

Acronyms

Acronym	Definition
DCO	Development Consent Order
EIA	Environmental Impact Assessment
FTE	Full-Time Equivalent
GVA	Gross Value Added
LEP	Local Enterprise Partnership
LQ	Location Quotient
NSIP	Nationally Significant Infrastructure Project
O&M	Operations and Maintenance
ONS	Office for National Statistics
PEIR	Preliminary Environmental Information Report

Units

Unit	Definition
MW	Megawatt (power)

1 Introduction

1.1 Project background

1.1.1.1 Ørsted Hornsea Project Four (hereafter the 'Applicant') is proposing to develop Hornsea Project Four Offshore Wind Farm (hereafter Hornsea Four). Hornsea Four will be located approximately 65km offshore off East Riding of Yorkshire in the Southern North Sea and will be the fourth project to be developed in the former Hornsea Zone. Hornsea Four will include both offshore and onshore infrastructure including an offshore generating station (wind farm), export cables to landfall, and connection to the electricity transmission network.

1.1.1.2 Hatch Regeneris was commissioned to undertake a socio-economics assessment for Hornsea Four. This involved a desk-based study to establish a baseline and estimate the likely impacts of Hornsea Four on Socio-economics.

2 Methodology

2.1.1.1 This section presents the detailed methodology used for the assessment of socio-economic impacts. The methodology and baseline study feeds in to the socio-economics chapter of this PEIR ([Volume 3, Chapter 10](#)) and will be included in the final Environmental Statement submitted as part of the DCO application.

2.2 Scope of Assessment

2.2.1 Study Area

2.2.1.1 There is some uncertainty regarding the location of ports for both the construction and operation and maintenance phases. However, the proximity of the Humber LEP area to the Hornsea Four array area and cable corridor, suggests that this is the most likely location for the ports for both phases. Given this uncertainty, a scenario-based approach is taken which enables the modelling of impacts for a non-Humber LEP area port.

2.2.1.2 The local study area is the Humber Local Enterprise Partnership area which includes Hull, East Riding, North Lincolnshire and North East Lincolnshire. A national impact area, the United Kingdom, is also considered to assess national effects of Hornsea Four.

2.2.2 Baseline

2.2.2.1 The baseline analysis is wholly desk based, drawing on a range of published datasets and research reports. It describes the socio-economic characteristics of the impact areas by exploring a range of socio-economic indicators that are particularly relevant to the selected receptors.

2.2.3 Quantification of Economic Impacts

2.2.3.1 The quantification of economic impacts focuses on the GVA and employment impacts of Hornsea Four. Here, the key assumptions for the modelling and the approach that is used are defined.

2.2.4 Modelling Economic Activity and Employment Impacts

2.2.4.1 For the key quantitative measures of economic impact (i.e. employment and GVA) an economic impact model has been developed to estimate the direct and indirect employment and GVA impacts during the construction and operations and maintenance (O&M) phases. Induced impacts (Impacts resulting from expenditure of employees) have been excluded as they are typically affected by greater uncertainty and are more difficult to defend robustly in terms of their scale and additionality. This incorporates Hatch Regeneris's latest in-house Input-Output tables which are based on National Accounts data (ONS, 2016).

2.2.4.2 The absolute scale of the economic impacts during the construction phase is measured using the following methods:

- **Direct Construction Employment and GVA:** This relates to the economic impacts wholly related to capital spend on design and construction. That is the employment and GVA which is associated with the first round of capital expenditure i.e. Hornsea Four's spend directly with prime contractors in each impact area. The assessment would be driven by the level of expenditure on goods and services retained in each impact area, for each scenario. The additional output in each sector is converted to jobs and GVA using sector-based benchmarks (from ONS, Annual Business Survey and ONS, Business Register and Employment Survey) appropriate to each impact area; and
- **Indirect Construction Employment and GVA:** These impacts take place in the supply chains of companies that supply goods and services as part of the supply chains during the construction phase. UK and Regional Input-Output tables, supplemented by National Accounts data (ONS, 2016) are used to estimate the amount of output generated across various sectors as a result of input into (or spend in) a particular sector of the economy. The model will estimate how direct spend in first tier suppliers leads to indirect output further down the supply chain. Again, the output from the model will be converted to jobs and GVA using sector benchmarks.

2.2.4.3 The absolute scale of the economic impacts during the O&M phase would be measured using the same indicators (employment and GVA) although the methodology would differ slightly:

- **Direct Operation and Maintenance employment and GVA:** Jobs and wealth creation directly associated with O&M activity is defined as the employees directly engaged in activities relating to the management, operation, monitoring and maintenance of the wind farm. The assessment will be driven by the number of employees and their salaries analysed by type of employment. The assessment will consider carefully whether to

include contractors who are directly engaged in maintenance activity as part of the direct employment, or to treat this as part of the supply chain (and hence the category below).

- **Indirect Operation and Maintenance employment and GVA:** Jobs and GVA associated with supply chain spend during the O&M phase. This includes first and second round supply chain impacts. These will be measured using UK and regional Input-Output tables, supplemented by National Accounts data (ONS, 2016) to estimate the amount of output generated across various sectors as a result of input into (or spend in) a particular sector of the economy. As for the construction phase, the model estimates how direct spend in first tier suppliers leads to indirect output further down the supply chain. The output is converted to jobs and GVA using sector benchmarks.

2.2.4.4 The output from this quantitative assessment underpins the assessment of the magnitude of impacts on each receptor. The magnitude of which is determined by the scale and nature of the impact in the context of the baseline position.

2.2.5 Estimated Construction and Operation and Maintenance Costs

2.2.5.1 The model which estimates the economic impacts draws on the construction and O&M costs as an input. These costs are then matched to sectors of production within the economy to track the likely sectoral patterns of expenditure.

2.2.5.2 These estimated costs are developed from the Crown Estate's Guide to an Offshore Windfarm (2019) which provides costs for each element of the wind farm per MW of capacity which are applied to an indicative estimate of capacity for Hornsea Four.

2.2.5.3 As the capacity for Hornsea Four is not known at this stage, it has been estimated using the benchmark capacity per turbine of 10 MW in the Crown Estate's Guide to an Offshore Windfarm (2019). Applying this to the maximum of 180 turbines ([Volume 1, Chapter 4: Project Description](#)), gives an indicative capacity of 1,800 MW. Note that this is used only for the purposes of estimating economic impacts and should not be taken as an estimate of the actual capacity for Hornsea Four which is not known at this stage.

2.2.5.4 It is noted that should fewer turbines be developed than the 180 maximum design scenario, any impacts and associated effects would be reduced in significance. The effects would not however be reduced to 'adverse' and would either remain 'beneficial' or at worst, 'negligible'.

2.2.6 Sourcing Scenarios

2.2.6.1 Whilst there is some uncertainty relating to the development and O&M costs (due to the unknown capacity of Hornsea Four), this is modest compared to the degree to which this expenditure will be retained within the geographical impact areas. Consequently, scenarios are used to test this uncertainty.

2.2.6.2 There are three possible sourcing scenarios which are assessed. The sourcing scenarios vary assumptions in the amounts of goods and services sourced from the Humber LEP area or the UK as a whole. The sourcing assumptions are informed by the following:

- Ørsted’s track record in delivering wind farms in the UK and their experiences of expenditure in local supply chains;
- Evidence of local and national supply chain strengths; and
- Ex-post assessments for other offshore wind farms of the retention of offshore wind farm expenditure in the UK.

2.2.6.3 The following spatial sourcing scenarios are used for the construction phase:

- Humber Port: the port is located within the Humber LEP area; and
- Non-Humber UK Port: the port is located within the UK but outside the Humber LEP area; and
- Non-UK Port: the port is located outside of the UK.

2.2.6.4 As there is slightly more certainty around the location of the O&M port, only the first two scenarios are used for the O&M phase:

- Humber Port: the port is located within the Humber LEP area
- Non-Humber UK Port: the port is located within the UK but outside the Humber LEP area

2.2.6.5 The sourcing scenarios are underpinned by assumptions regarding the degree of retention of expenditure in each impact area (the retention percentages will need to be confirmed in due course). Note the high/low used in [Table 1](#): does not denote a high and low range, it is provided to indicate the relative proportions of sourcing in each study impact area, compared to other scenarios.

Table 1: Sourcing Scenarios – Expenditure Retention.

	Local Sourcing	UK Sourcing
Humber LEP Port	High	High
Non-Humber LEP UK Port	Low	High
Non-UK Port	Low	Low

Source: Hatch Regeneris.

2.2.6.6 Further variant sourcing scenarios have been excluded as they would be difficult to evidence robustly.

2.2.7 Access to Employment Impacts

2.2.7.1 The impacts on local skills and labour force are driven by three elements:

- The scale and nature of employment estimated under each sourcing scenario (quantitative assessment);
- The capability and capacity for the local labour force to access the employment opportunities (mix of qualitative and quantitative assessment); and
- The extent to which the local jobs are filled by the workforce of contractors from outside the local area (mix of qualitative and quantitative assessment).

2.2.7.2 The nature of employment opportunities presented by Hornsea Four is based on past evidence from similar developments and information provided by Hornsea Four. The types of jobs centre around the following themes:

- Lower tier manufacturing contracts (for example the supply of components);
- Specialist construction activities;
- Land and water-based transport; and
- Accommodation and food services.

2.2.7.3 The ability and capacity within the local labour force to access employment opportunities is informed by the baseline assessment, which draws on data on the proportion of residents available to work and their qualification, skills and current industry profile.

3 Policy Context

3.1 UK Economic Development Policy

3.1.1.1 Renewable energy and offshore wind in particular have become increasingly important nationally over the past two decades. Growth in the renewable energy sector was traditionally driven by environmental benefits, however it now presents a significant opportunity in terms of economic development and is becoming a key driver of economic growth.

3.1.2 Offshore Wind Sector Deal

3.1.2.1 The UK Government and the Offshore Wind Industry have committed to a sector deal to help the industry drive forward the aims of the UK Industrial Strategy. Key commitments include:

- increasing UK content to 60% of value associated with offshore wind farm activity by 2030; and
- £250m industry investment in building a stronger UK supply chain to support productivity and increase competitiveness.

3.1.3 UK Industrial Strategy

- 3.1.3.1 The 2017 White Paper titled "*Industrial Strategy: building a Britain fit for the future*" sets the Government's vision for the UK economy (Department for Business, Energy & Industrial Strategy, 2017a). The underlying motivation of the strategy is to "*create an economy that boosts the productivity and earning power throughout the UK.*"
- 3.1.3.2 The Government identifies five foundations of productivity that align to the economic vision. The foundations will support the creation of high value jobs and skills (People); investment and sector growth through Sector Deals (Business Environment); innovation and research and development (R&D) investment (Ideas); investment in digital, transport, housing, low carbon and other infrastructure (Infrastructure); and developing Local Industrial Strategies which focus on local strengths (Places).
- 3.1.3.3 In addition, four Grand Challenges have been set for the UK Government and the economy as a response to global opportunities: artificial intelligence (AI), clean growth, future of mobility, and ageing society. Clean Growth has been identified as one of the main opportunities for the UK economy to take advantage of, through the "*development, manufacture and use of low carbon technologies, systems and services*". Offshore wind is one of the areas where the UK has been identified as having world-leading capabilities, and the Strategy aims to maximise the share of the global markets taken up by UK businesses in the sector. In support of this, the UK Government has committed to increasing support for innovation to reduce the costs of clean technologies, systems and services.

3.1.4 Clean Growth Strategy

- 3.1.4.1 Connected to the UK Industrial Strategy, the UK Government has developed a clear growth strategy to ensure economic growth goes hand in hand with greater protection for the natural environment (Department for Business, Energy & Industrial Strategy, 2017b). Within this is a commitment to help British businesses and entrepreneurs seize the opportunities of the low carbon economy, and specifically offshore wind. This is driven by policies and processes to improve the route to market for renewable technologies such as offshore wind. Examples include up to £557 million for further Pot 2 Contract for Difference auctions and working with industry to develop an ambitious sector deal for offshore wind.

3.1.5 COREs

- 3.1.5.1 The importance of renewable energy and specifically offshore technologies, to the UK's economic policy is illustrated by the commitments made by the Department of Energy and Climate Change (DECC) and the Department for Business, Innovation and Skills (which have now been combined into the Department for Business, Energy and Industrial Strategy (BEIS)) to maximising the economic benefit of renewable energy, especially offshore wind farm developments.

3.1.5.2 As part of this, six Centres for Offshore Renewable Engineering (COREs) have been established across the UK (two of which cover Hull and the Humber Estuary, and Great Yarmouth and Lowestoft). The intervention is driven by the need to meet the legally binding renewables target by 2020 as set out in the Renewable Energy Roadmap and there is a need to support the offshore wind manufacturing capacity to achieve the targets (Department of Energy & Climate Change, 2011). CORE's aim is subsequently to maximise the ability of areas to benefit from opportunities in offshore engineering. Support structures that are in place include the establishment of Enterprise Zones with simplified planning regimes and enhanced capital allowances, among other incentives.

3.1.5.3 The Offshore Wind Industrial Strategy (HM Government, 2013) highlights that it is a government goal to strengthen the UK offshore wind supply chain and support the development of the sector. The action plan outlined in the document sets out a requirement to submit a supply chain plan as part of the bidding process for Contracts for Difference to encourage a high proportion of local content.

3.1.6 Offshore Renewable Energy Catapult

3.1.6.1 The Offshore Renewable Energy (ORE) catapult was set up in 2013 to accelerate the creation and growth of UK companies in offshore renewable energy and provides facilities and research and engineering capabilities to bring together industry and academia to drive innovation.

3.2 Other relevant policies

3.2.1.1 A number of other policies are relevant to socio-economics including:

- National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2018)
- The UK wide Marine Policy Statement (MPS). (HM Government, 2011)

3.2.1.2 The NPPF emphasises that one of the overarching objectives of the planning system is environmental which includes supporting the transition to a low carbon future by supporting renewable and low carbon energy and associated infrastructure. It explains how local planning authorities must support the delivery of low carbon energy and associated infrastructure to increase the use of renewable and low carbon energy and help to move toward a low carbon economy.

3.2.1.3 The MPS states that properly planned developments in the marine area can provide environmental and social benefits as well as drive economic development, provide opportunities for investment and generate export and tax revenues. There are obvious social and economic benefits from such an increase in network capacity, most notably the facilitation of offshore renewable energy. There are also social and economic risks associated with such an increase in underwater cabling, which may affect activities such as dredging and the use of certain fishing gear, and impact on other sea users, including existing cable and pipeline operators. The marine plan authority should ensure, through integration

with terrestrial planning, and engagement with coastal communities, that marine planning contributes to securing sustainable economic growth both in regeneration areas and areas that already benefit from strong local economies.

3.2.2 Local Economic Development Policy

- 3.2.2.1 National aspirations in relation to private sector-led economic growth and employment creation are echoed in the strategic aims of key organisations in Hornsea Four local economic development study areas (the Humber LEP). Here, the focus of economic policy is to close the gap between local and national economic performance.
- 3.2.2.2 The Humber LEP covers four local authorities. The headline economic development aims of the Humber LEP centre on creating employment and growing the economy through focusing on key sectors and areas of opportunity (particularly those arising through the renewables sector).
- 3.2.2.3 The Humber LEP's strategic plan 2014-2020 (Humber LEP, 2014) anticipates that renewable energy will play a central role in the economic development of the area. The Humber LEP notes that taking advantage of major growth opportunities such as renewable energy will be critical to realising the true potential of the Humber Estuary. The Humber LEP also notes that transport and logistics will play a key role in achieving their key economic objectives. The Humber LEP plans to create over 13,000 jobs over next 10 years alongside the long-term objective of closing the GVA gap with the rest of England.
- 3.2.2.4 By 2020 the Humber LEP aims to have a thriving renewable sector with ambitious schemes well under way which will have created thousands of jobs, as well as aligning skills with the needs of this economy. The UK Government has designated the Humber a Centre for Offshore Renewable Engineering and worked with the Humber LEP and local authorities to designate two Enterprise Zones.
- 3.2.2.5 The Humber LEP's draft European Structural Investment Fund Strategy (Humber LEP, 2013) outlines allocation plans for European Structural and Investment Funds for 2014-2020, worth €102.4 million. The overall vision is that the Humber region will become a leading national and international centre for renewable energy. The "*SME Growth and Innovation Programme*" looks to stimulate innovation and growth in low carbon goods and services. Furthermore, the "*Skills Programme*" plans to assist Humber residents to develop skills and to support the progress of the unemployed and economically inactive into employment.
- 3.2.2.6 The importance of the renewable energy sector to economic development objectives is reflected in the economic development strategies of some of the local authorities within the Humber LEP:
- Hull Local Plan 2016 to 2032 (Hull City Council, 2017): The local plan acknowledges the firmly established renewable energy sector locally and in particular the production of offshore wind blades and related assembly at Green Port Hull. Under Policy 18, the

Plan also states that the Council is keen to promote renewable and low carbon energy developments as it helps reinforce Hull as a green energy city;

- East Riding Local Plan: Strategy Document (East Riding of Yorkshire Council, 2016): The importance of offshore wind energy to East Riding's wider strategic aims is reflected strongly in the plan. Policy EC1 points to supporting the growth of the East Riding economy through development of sectors such as renewable energy. Policy EC5 indicates that proposals for the development of the energy sector (including wind farm developments) will be supported where any significant adverse impacts are avoided (or where adverse impacts have been minimized or are outweighed by the benefits of the proposal). Under Policy S6 of the strategy, is a recommendation to support necessary employment land developments required to deliver offshore renewable energy projects;
- North Lincolnshire Core Strategy 2006 to 2026 adopted June 2011 (North Lincolnshire District Council, 2011): The core strategy for North Lincolnshire identifies the south bank of the River Humber as a strategic employment site within Policy CS12 and underlines the importance of attracting and developing port-related employment. In addition to the clear aspiration that the offshore wind sector will make a major contribution to economic development across the local economic development study area, local and Humber LEP wide strategies emphasise the importance of, and aspirations for, a number of other sectors. Many of these overlap with the renewables sector, for example the engineering and manufacturing sector is highlighted as strategically important across the Humber. In addition, the ports and logistics sector is recognised within the Humber LEP as a key area of opportunity and strategic importance; and
- North East Lincolnshire Economic Strategy (North Lincolnshire District Council, 2016): Identifies port and renewable energy as key priority sectors for growing the local economy. The sector presents an opportunity, building on the presence of major investments located in the area, including Morrisons, Siemens, Ørsted and Centrica. The ambition is to establish the borough as a UK centre for renewable energy, working with the rest of the Humber to realise the potential of the Energy Estuary.

3.2.3 Humber LEP Local Industrial Strategy

3.2.3.1 Although the Local Industrial Strategy is still under development, the Humber LEP has set out it's framework in the Humber's Blueprint for an Industrial Strategy, which was launched in June 2018 (Humber LEP, 2018).

3.2.3.2 The blueprint states that the local industrial strategy will focus on four groups of related sectors:

- Clean energy;
- Energy-intensive & continuous process;
- Engineering & assembly; and
- Enabling services (Ports & logistics, Digital & professional).

- 3.2.3.3 The blueprint acknowledges that the Humber is now one of the world's leading hubs for offshore wind. The Humber believes it can play a leading part in enabling the sector to scale up and innovate – creating more local jobs and supply chain opportunities. The Humber LEP also has strengths in other parts of the energy mix, including biofuels and energy from waste, and new opportunities in energy storage.

4 Detailed Socio-economic Baseline

4.1.1 Approach to socioeconomic baseline assessment

- 4.1.1.1 The baseline analysis is wholly desk based, drawing on a range of published datasets and research reports. It describes the socio-economic characteristics of the impact areas by exploring a range of socio-economic indicators that are particularly relevant to the selected receptors.
- 4.1.1.2 The key sources of data used to assess the baseline environment include relevant national datasets from the Office for National Statistics (ONS) providing data on population, labour market and employment base conditions at the national and local levels. Where data is not available at the UK level (for example, ONS employment data is available for Great Britain rather than the United Kingdom), this is clearly stated.
- 4.1.1.3 The indicators selected, exclude those for social and community infrastructure (SCI) and tourism as these have been scoped out of the assessment. These impacts are outlined, together with a justification for scoping them out in [Volume 4, Annex 5.1: Impacts Register](#).
- 4.1.1.4 Baseline information for the study areas is collected through a detailed desk-based review of existing studies and datasets. The analysis draws on the most up to date sources of data available at January 2019 for all key socio-economic indicators, although the year that the data relates to varies according to the release calendar for each dataset. The baseline year for all socio-economic indicators is referenced throughout the chapter and stated in [Table 2](#).

Table 2 Data Sources for Baseline Indicators.

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

Source: Hatch Regeneris

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

4.1.1.6 The local economic development study area is characterised by different socio-economic characteristics, which form the context for the potential impact of Hornsea Four on the local economies. The uncertainties associated with Hornsea Four at this stage (e.g. the choice of port for construction and O&M activities) mean that it cannot be concluded where the socio-economic impacts will occur.

4.1.1.7 The selection of ports will be determined during a procurement exercise, and there are several factors which may influence the decision. This includes available capacity, facilities, access to the port from land and sea, local supply chains, and further commercial considerations.

4.1.2 Humber LEP Local Economic Development Study Area

4.1.2.1 Humber LEP local economic development study area consists of a built-up area with an industrial heritage and rural hinterlands. Historically, it suffers from socio-economic challenges, such as pockets of unemployment and deprivation affecting areas which have experienced industrial decline. Despite these challenges, the LEP has a strong and growing renewable energy sector. As outlined in the policy section, this is a focal point for economic development activity. Humber LEP has seen significant investments in recent years to develop its offshore wind sector and enhanced its potential to benefit from the Hornsea Projects. The socio-economic position of Humber LEP is examined in more detail below.

4.1.3 Population

4.1.3.1 As detailed in [Table 3](#), the Humber LEP local economic development study area has a population of over 930,000 people, of whom 568,700 are working age (61%, just under the national average of 63%). The proportion of working age residents varies between the local authorities in the Humber, from 58% in the East Riding of Yorkshire to 65% in the City of Kingston upon Hull.

Table 3 Population, total and working age, Humber LEP 2017.

Area	Population (00s)	Working Age Population (000s)	Working Age Population as % of Total
East Riding of Yorkshire	338	197	58%
Kingston upon Hull, City of	261	171	65%
North East Lincolnshire	160	97	61%
North Lincolnshire	171	104	61%
Humber LEP	930	569	61%
United Kingdom	66,040	41,546	63%

Source: ONS, Population Estimates 2017, Numbers are rounded to nearest 1,000.

4.1.4 Labour Market Indicators

4.1.4.1 The Humber's labour market performance is comparable to national indicators: the local economic development study area's economic activity rate of 78%, the same as the UK average as is the employment rate. Spatially, East Riding of Yorkshire shows the strongest labour market performance across the area, with economic activity rate of 80% and an employment rate of 77%. The other three local authorities are below the UK average.

4.1.4.2 The levels of economic inactivity follow the same spatial pattern, both the UK average and the Humber have the same percentage (22%). Kingston upon Hull and North Lincolnshire have highest inactivity levels, with a little less than a quarter of working age residents being inactive (24%). Further details are provided in [Table 4](#).

Table 4 Labour market performance, Humber LEP Oct 2017-Sept 2018.

Area	Economically active		In Employment		Economically inactive	
	Number (000s)	% Working Age Population	Number (000s)	% Working Age Population	Number (000s)	% Working Age Population
East Riding of Yorkshire	157	80%	151	77%	40	20%
Kingston upon Hull, City of	127	76%	118	71%	40	24%
North East Lincolnshire	77	79%	72	74%	21	21%

Area	Economically active		In Employment		Economically inactive	
	Number (000s)	% Working Age Population	Number (000s)	% Working Age Population	Number (000s)	% Working Age Population
North Lincolnshire	79	76%	73	71%	25	24%
Humber LEP	439	78%	415	74%	125	22%
United Kingdom	32,278	78%	30,898	75%	8,940	22%

Source: ONS, Annual Population Survey 2018. Numbers are rounded to nearest 1,000.

4.1.4.3 The unemployment rate (6%) is slightly higher than the average for the UK as a whole (4%) with 25,000 unemployed residents across the Humber LEP area. As shown in [Table 5](#) there is a marked variation within Humber, with both Kingston upon Hull and North Lincolnshire having an unemployment rate of 7% and East Riding of Yorkshire with a lower unemployment rate of below 4%.

Table 5 Data Sources for Baseline Indicators.

Area	Number unemployed (000s)	Unemployment rate (% econ. active population)
East Riding of Yorkshire	6	4%
Kingston upon Hull, City of	9	7%
North East Lincolnshire	4	6%
North Lincolnshire	6	7%
Humber LEP	25	6%
United Kingdom	1,380	4%

Source: ONS, Population Estimates 2017, Numbers are rounded to nearest 1,000.

4.1.4.4 Claimant Count data ([Figure 1](#)) highlights the falling number of claimants over the last ten years across the UK and the Humber as the UK economy and its regions emerged from recession in 2011. However, the number of claimants in the Humber as a proportion of the working age population is consistently higher than the national average and recently both UK and Humber claimants has risen as economic growth has slowed. In December 2018, there 17,700 claimants, representing 3.1% of the working age population – this compares to 2.4% nationally.

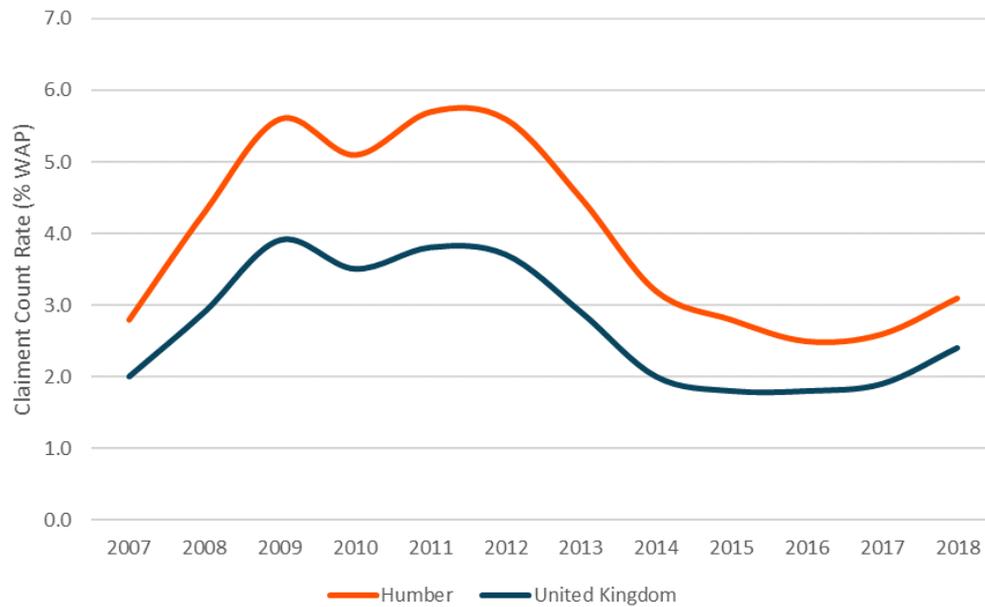


Figure 1 Claimant Count Rate, Dec 2006- Dec 2018,

- 4.1.4.5 It is no longer possible using published data sources to quantitatively estimate how many unemployed residents are seeking work in sectors which are relevant to the construction of Hornsea Four. This is due to a change in the availability of a sectoral breakdown of ONS Claimant Count data. Analysis of labour market capacity in the years before Universal Credit was rolled out, when a sectoral breakdown of claimant data was possible, indicates that residents seeking employment occupations relevant to wind farm construction accounted for between 30% and 40% of claimants. This is likely to be the upper limit, as since 2013 demand for construction related employment has been high.
- 4.1.4.6 **Table 6** summarises the skills profile of working age residents across the Humber. It shows significant underperformance in higher level skills compared to the position at the UK level: 31% of working age residents in the Humber have higher level skills (i.e. Level 4+ which is equivalent to a degree and above) compared to 38% across the UK. The underperformance is consistent across all local authorities within the Humber, although the East Riding of Yorkshire has the highest representation of higher-level skills at 37%. In all other skill levels, Humber LEP has a larger share than the UK.
- 4.1.4.7 The occupational profile of residents mirrors the representation of skills: a quarter of Humber residents are in high skill occupations, six percentage points below the national average. Unsurprisingly, the proportion of residents in medium and low skill occupations is higher, particularly in low skills (39% in Humber compared to 34% in the UK).
- 4.1.4.8 Within Humber LEP, East Riding of Yorkshire has got the highest proportion of residents in high level occupation equivalent to 24%, equivalent to the national average. North East

Lincolnshire stands out as having the least skilled occupation profile, with only 15% of residents in high skill and a third in low skill occupations.

Table 6 Qualifications of working-age residents, Humber LEP 2017.

Area	Level 4		Level 3		Apprenticeships		Level 1 and 2		No Qualifications	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Riding of Yorkshire	72	37%	39	20%	10	5%	55	28%	12	6%
Kingston upon Hull, City of	50	30%	30	18%	10	6%	48	29%	18	11%
North East Lincolnshire	23	23%	20	21%	5	5%	34	34%	10	11%
North Lincolnshire	30	29%	19	18%	5	5%	35	33%	7	7%
Humber LEP	174	31%	108	19%	30	5%	171	30%	47	8%
United Kingdom	15,549	38%	6,997	17%	1,288	3%	10,987	27%	3,381	8%

Source: ONS, Annual Population Survey 2017. Numbers are rounded to nearest 1,000. Percentages may not sum to 100% due to rounding.

4.1.4.9 The occupational profile of residents (**Table 7**) mirrors the representation of skills: a quarter of Humber residents are in high skill occupations, six percentage points below the national average. Unsurprisingly, the proportion of residents in medium and low skill occupations is higher, particularly in low skills (39% in Humber compared to 34% in the UK).

Table 7 Occupations of working age residents, Humber LEP Oct 2017-Sep 2018.

Area	High-skill occupations		Medium-skill occupations		Low-skill occupations	
	No.	%	No.	%	No.	%
East Riding of Yorkshire	51	33%	55	32%	51	32%
Kingston upon Hull, City of	24	20%	46	37%	53	43%
North East Lincolnshire	17	24%	24	32%	44	44%
North Lincolnshire	18	24%	25	33%	32	42%
Humber LEP	110	26%	150	35%	167	39%
United Kingdom	9,979	31%	11,195	35%	10,812	34%

Source: ONS, Annual Population Survey 2017. Numbers are rounded to nearest 1,000. Percentages may not sum to 100% due to rounding.

4.1.4.10 Within Humber LEP, East Riding of Yorkshire has got the highest proportion of residents in high level occupation equivalent to 24%, equivalent to the national average. North East Lincolnshire stands out as having the least skilled occupation profile, with only 15% of residents in high skill and a third in low skill occupations.

4.1.5 Employment by Sector

4.1.5.1 As shown in **Table 8** there are 392,000 people employed across Humber LEP, with East Riding of Yorkshire and Kingston upon Hull accounting for two thirds of employees in the local economic development study area. This equates to around 327,000 FTE jobs. Employment density in the Humber is around 674 jobs for every 1,000 working age residents, which is below the national average by 49 jobs for every 1,000 residents.

4.1.5.2 East Riding of Yorkshire has the lowest employment density of the local authorities in the Humber despite accounting for almost a third of the local economic development study area's Local Study Area's employment with 621 jobs per 1,000 residents. Kingston upon Hull on the other hand is closest to the national average, with 729 jobs for every 1,000 working age residents.

Table 8 Employment and employment density in Humber LEP 2017.

Area	Total Number of Employees (000s)	% of Employees in Humber	Employment Density (Jobs per 1,000 working age residents)	FTE Number of employees (000s)
East Riding of Yorkshire	127	32%	621	105
Kingston upon Hull, City of	125	32%	729	105
North East Lincolnshire	68	17%	681	57
North Lincolnshire	72	18%	682	62
Humber LEP	392	100%	674	327
Great Britain	29,268		723	24,753

Source: ONS, Population Estimates 2017, Numbers are rounded to nearest 1,000.

4.1.5.3 Annual changes in FTE employment are much more pronounced in the Humber compared to the national picture as shown in **Figure 2**. The Humber took longer to recover from the economic recession, with positive growth in employment starting in 2013. Since then, the annual changes in FTE employment follow the national trend on the whole, with most recent growth rates of 2.0% in the Humber and 0.9% nationally.

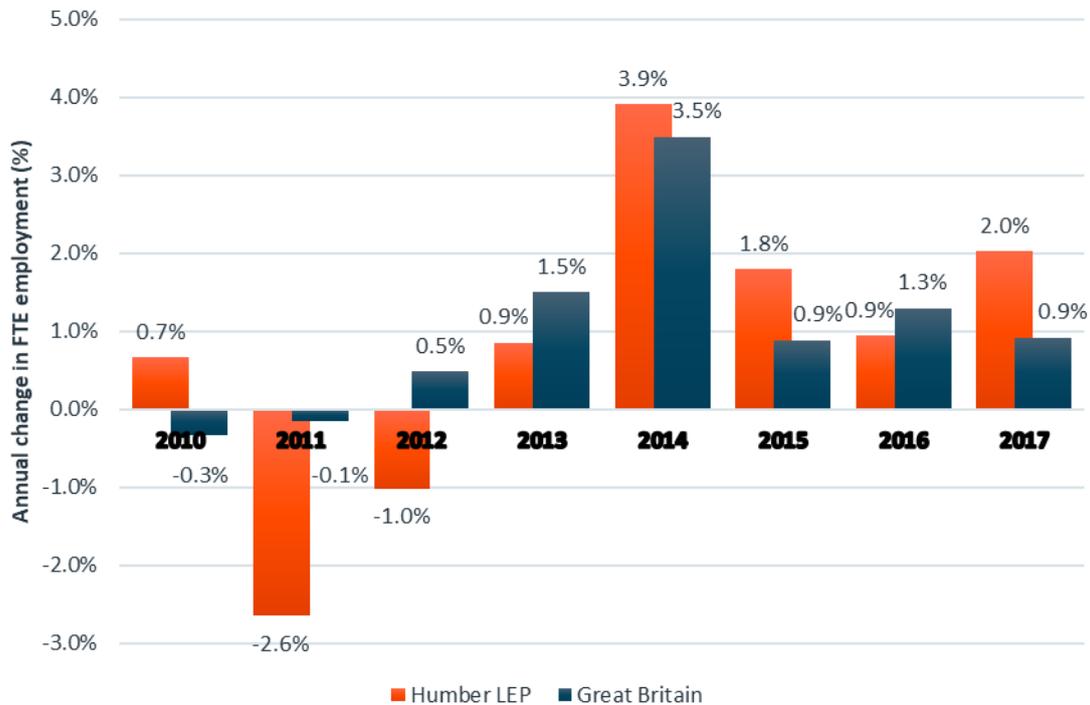


Figure 2 ONS, Business Register and Employment Survey 2017.

4.1.5.4 Analysis of employment by sector highlights the importance of manufacturing across the Humber: it is the largest sector in the area, accounting for 20% of FTE employment (see [Figure 3](#)). Location Quotient (LQ) analysis shows the manufacturing sector in the Humber is more than twice the concentration than nationally, reflecting the specialisation of the area. This is driven by the presence of large petrochemicals and chemical manufacturers, pharmaceutical manufacturers, renewable energy supply chain, and high value steel manufacturers. There is also a high concentration in the transport and storage sector which supports the manufacturing industry. Aside from manufacturing, however, employment in the Humber is mainly concentrated in lower value sectors, with wholesale and retail, health and education together accounting for 27% of the FTE employment base.

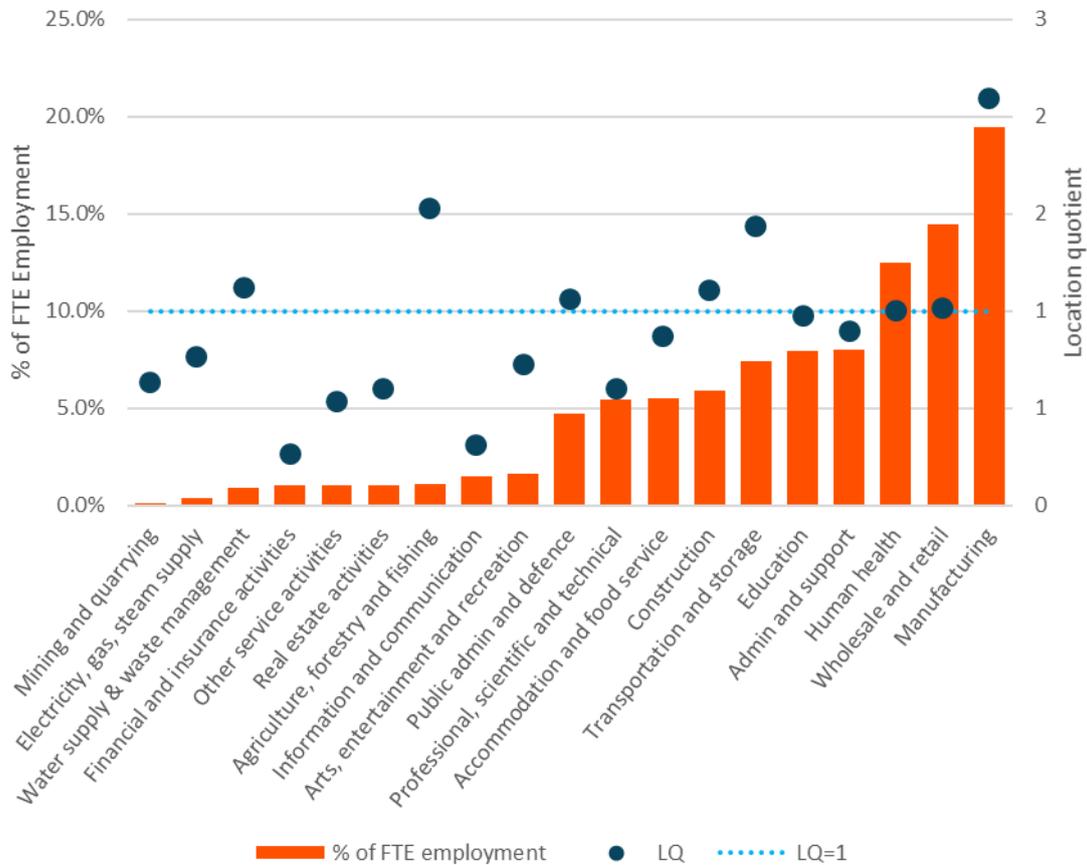


Figure 3 Sectoral distribution of employment, Humber LEP 2017.

4.1.6 Gross Value Added & Earnings

4.1.6.1 The Humber LEP contributed £18.4 billion GVA to the UK economy in 2016 as shown in [Table 9](#). A more detailed geographical breakdown is available by Nomenclature of Territorial Units for Statistics (NUTS) 3 area:

- North and North East Lincolnshire together account for 38% of Humber’s GVA; and
- The East Riding of Yorkshire accounted for the largest share of Humber’s GVA out of the single local authorities (33%), followed by Kingston upon Hull.

4.1.6.2 The GVA per head of population shows a significant gap between Humber and the UK, with GVA per head 27% below the national average (approximately £20,000 compared to £27,600). This is due to the area having a larger share of residents employed in low skill occupations compared to the UK and given the sectoral composition of the employment in low value sectors and a high incidence of unemployment and inactivity. The earnings paint

a similar picture, where Humber is below the rest of the UK in earnings and therefore, wealth generation.

Table 9 GVA and GVA per head Humber LEP 2017.

Area	Total GVA (£millions)	GVA per head
Kingston upon Hull, City of	5,300	20,300
East Riding of Yorkshire	6,200	18,400
North and North East Lincolnshire	7,100	21,500
Humber LEP	18,600	20,000
United Kingdom	1,819,800	27,600

Source: ONS Nominal regional gross value added (balanced) per head and income components 2017.

4.1.6.3 Data on median annual earnings for full-time employees shows Humber's residents earn £3,000 less on average than the national indicator ([Table 10](#)). There is very little difference between resident and workplace earnings in the Humber: residents earn £200 more on average than those who work in Humber (Residence-based earnings provide data for employees who are living in the area; workplace earnings provide earnings for employees who are working in the area).

4.1.6.4 The difference between resident and workplace earnings is more pronounced within the local authorities. North Lincolnshire shows the highest workplace wages out of the local authorities in Humber, although still below the national average (workplace earnings of £26,400 are below the average earnings for the UK of £29,600).

Table 10 GVA and GVA per head Humber LEP 2017.

Area	Residence based earnings (£)	Workplace based earnings (£)
East Riding of Yorkshire	28,800	26,400
Kingston upon Hull, City of	23,700	25,800
North East Lincolnshire	25,600	22,700
North Lincolnshire	28,400	28,700
Humber LEP	26,600	26,400
United Kingdom	29,600	29,600

Source: ONS Annual Survey of Hours and Earnings 2017.

4.1.7 Deprivation

4.1.7.1 The Index of Multiple Deprivation map ([Figure 4](#)) shows that there are a number of areas in the Humber LEP with some of the highest levels of deprivation seen across England. This is particularly true in Hull where almost half of its Lower Super Output Areas (LSOAs) are in the highest 10% of deprivation. Further detail is provided in [Table 11](#).

Table 11 Neighbourhoods in the Highest Decile of Deprivation, 2015.

	LSOAs in Highest Decile	Proportion of all LSOAs
Kingston upon Hull, City of	75	45%
North East Lincolnshire	31	29%
East Riding of Yorkshire	13	6%
North Lincolnshire	9	9%
Humber LEP Total	128	22%

Source: ONS, Index of Multiple Deprivation, 2015.

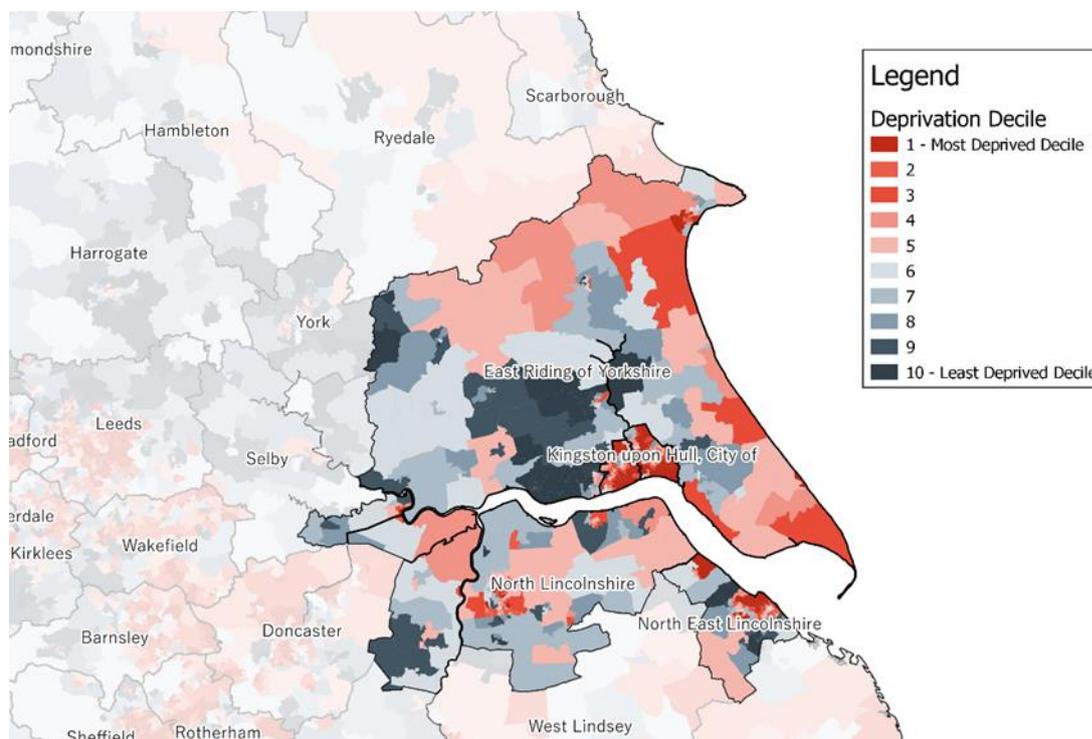


Figure 4 Map of Deprivation by Decile in the Humber LEP area, 2015

4.1.8 Supply Chain Capacity and Capability

4.1.8.1 The Humber LEP’s local economic development study area has been able to benefit from several offshore wind developments in recent years, building on its existing industry strengths and further capabilities. There are a number of major businesses established in the Humber that are involved in offshore wind developments. These include Siemens and its blade manufacturing facility in Hull; REDS Maritime providing cable remediation and support services; GEV Wind Power – a turbine maintenance company, and other key energy players such as Centrica, Total and BP (Renewable UK, 2016).

4.1.8.2 The £310m investment by Siemens Gamesa and ABP at Green Port Hull presents a significant opportunity for the sector locally, with the wind turbine installation and production plant currently employing around 1,000 people. This presents a significant

opportunity to retain supply chain expenditure that is often sourced for UK wind farms from outside of the UK (Siemens, 2017).

- 4.1.8.3 The local study area has also gained recognition nationally within the sector with The Offshore Renewable Energy Catapult and Offshore Wind Industry Council’s Prospectus referencing the Humber LEP as a successful example of creating long-term highly skilled jobs locally and establishing a supply chain (Offshore Renewable Energy Catapult & Offshore Wind Industry Council, 2018)
- 4.1.8.4 A report for Energy & Utility Skills on the skills and labour requirements of the offshore wind industry estimates that direct employment in the sector could increase from 10,000 in 2017 to 36,000 in 2032, nationally. (Energy & Utility Skills, 2018) An increase of 26,000 jobs, 5,750 of which are expected to be in the Yorkshire & Humber region.
- 4.1.8.5 Ørsted has an established presence in Humber LEP. Its operational offshore wind hub in Grimsby was established to support Westernmost Rough, Race Bank and Hornsea Project One offshore wind farms. Ørsted is also in advanced stages of developing the concept of an “East Coast Hub” as an extension of its offshore wind operations centre at the Royal Docks in Grimsby which will serve Westernmost Rough, Lincs, Race Bank, Hornsea Project One and Project Two offshore wind farms.

4.1.9 Key Supply Chain Sectors

- 4.1.9.1 Given the history of offshore wind supply chains in the Humber LEP and the prominence of the manufacturing sector, there may be opportunities for businesses across several sectors to benefit from the construction and O&M activities from Hornsea Four.
- 4.1.9.2 Several sectors have the potential to be impacted by construction and O&M including construction and engineering sectors (detailed in [Table 12](#)). It is likely that a share of this employment is already engaged in offshore wind supply chain activities given the presence of major industry players.

Table 12 Employment in key strategic sectors in Great Britain and Humber LEP 2016.

Sector	Great Britain Employment (000s)	Great Britain % of total	Humber Employment (000s)	% of total in Humber	Humber LQ
Manufacturing (non-engineer)	1,476	5%	46	12%	2.3
Construction	1,504	5%	22	5%	1.1
Land based transport	1,103	4%	25	6%	1.7
Engineering	957	3%	21	5%	1.7
Energy Generation	305	1%	4	1%	1.1
Marine Transport	12	0%	0.2	0%	0.94

Source: ONS Business Register and Employment Survey 2017. Numbers are rounded to nearest 1,000.

4.1.9.3 There are several specialisms within the Humber LEP's employment base which position the area well to benefit from Hornsea Four. The area shows specialisms within several manufacturing subsectors, including fabricated metal production and manufacturing of wires and devices, both of which have a LQ value of 1.3.

4.1.9.4 The transportation sector shows most local specialism, with FTE employment concentrations more than double that of Great Britain. This activity, especially sea and coastal transport, is driven by the presence of ports in the area. The transport sector also accounts for a large number of absolute jobs equivalent to 14,000 FTE employees.

Table 13 Employment in sectors with supply chain opportunities for construction and operation and maintenance, Humber 2016.

Sector	Great Britain FTEs (000s)	Humber FTEs (000s)	Humber LQ vs Great Britain
Manufacturing:			
Fabricated metal products	48	1.0	1.5
Motors, generators, transformers etc.	28	0.1	0.3
Wiring and wiring devices	14	0.2	1.1
General purpose machinery	53	1.1	1.5
Construction sectors:			
Building of ships and boats	29	0.1	0.2
Other civil engineering projects	125	2.7	1.6
Transport sectors:			
Freight transport by road	226	5.4	1.7
Sea and coastal freight water transport	5	0.0	0.3
Support activities for transportation	224	9.2	2.9
Professional services:			
Management consultancies	411	2.7	0.5
Architectural, engineering consultancy	405	3.6	0.6
Other professional, scientific and technical	100	1.0	0.7

Sector	Great Britain FTEs (000s)	Humber FTEs (000s)	Humber LQ vs Great Britain
Accommodation and food services:			
Accommodation	350	3	0.8
Food and beverage services	1214	14	0.8
Other sectors:			
Electric generation, transmission, distribution	85	1.0	0.8
TOTAL	3,313	46.3	n/a

Source: ONS Business Register and Employment Survey 2017. Numbers are rounded to nearest 1,000.

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