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20. Socio-economics and Tourism

20.1 Introduction

20.1.1 This chapter of the Preliminary Environmental Information (PEI) Report addresses the potential effects of the Proposed Development on employment, local businesses and the local population during both the construction, operation and decommissioning phases.

20.1.2 As scheme design is currently being developed, the process of gathering information and identifying how the environment might be affected by the Proposed Development is still underway. The information contained within this Chapter is therefore preliminary and may be subject to change prior to the production of the full Environmental Statement (ES) which will accompany the DCO application.

20.2 Legislation and Planning Policy Context

Policy Context

National Energy Policy

National Policy Statements for energy infrastructure (2011)

20.2.1 The National Policy Statement (NSPs) for energy infrastructure set out the Government's policy for delivery of major energy infrastructure.

20.2.2 The National Policy Statement for Energy (NPS EN-1) identifies that 'information on the likely significant social and economic effects of the development' should be set out alongside 'how any likely significant negative effects would be avoided or mitigated'. Impacts should be assessed at local or regional levels and cumulative effects should also be considered. The National Policy Statement for Renewable Energy (NPS EN-3) identifies that corridors should be identified for cables and on-shore electricity substations, with the Environmental Impact Assessment (EIA) to capture the impacts of this infrastructure within that corridor.

National Planning Policy

National Planning Policy Framework (2019)

20.2.3 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2019) requires local authorities to set out a clear economic vision and strategy for their area which encourages sustainable economic growth. It states that planning policies should help create the conditions in which businesses can invest, expand and adapt.

20.2.4 Paragraph 8 of the NPPF states that to achieve sustainable development and support a competitive economy, the following economic objective should be delivered: "*ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and*

improved productivity; and by identifying and coordinating the provision of infrastructure."

20.2.5 Paragraph 82 of the NPPF states that planning policies should "*recognise and address the specific locational requirements of different sectors. This includes making provision for clusters or networks of knowledge and data-driven, creative or high technology industries; and for storage and distribution operations at a variety of scales and in suitably accessible locations."*

20.2.6 Paragraph 148 of the NPPF states that "*the planning system should support the transition to a low carbon future in a changing climate… and support renewable and low carbon energy and associated infrastructure."*

The UK's Draft Integrated National Energy and Climate Plan (2019)

20.2.7 In 2019, the UK Government set out the dimensions of the country's 'Energy Union', establishing direction of energy policy for the country. The five dimensions of the National Energy and Climate Plan (NECP) are:

- decarbonisation;
- energy efficiency;
- energy security;
- internal energy market; and
- research, innovation and competitiveness.

Regional Planning Policy

Tees Valley Combined Authority Strategic Economic Plan 2016 – 2026 (2016)

20.2.8 The Tees Valley Strategic Economic Plan (SEP) sets out the priorities for economic growth in the Tees Valley area. By 2026, the Combined Authority aim to create 26,000 additional jobs and grow the Tees Valley economy by £2.8 billion. The process, chemicals and energy sector is one of seven priority sectors identified as having the potential for further growth in the Tees Valley. The SEP is focussed around six themes which reflect the main priorities over the ten-year plan period. This includes '*research, development, innovation and energy' where the aim is to 'introduce new processes and practices which reduce carbon emissions, increase productivity and the availability of high value jobs.*' This includes carbon capture and storage.

Local Planning Policy

20.2.9 In the Proposed Development Study Area (defined in Chapter 2: Assessment Methodology, PEI Report, Volume I), planning policy regarding socio-economics are made by RCBC and STBC. Relevant policies by the councils have been considered in the following section.

Redcar and Cleveland Local Plan (2018a)

20.2.10 A key issue identified in the Local Plan is the fragility of the economic landscape and a need for jobs to be generated in the private sector. The Local Plan indicates future growth is likely to be driven by low carbon

technologies and manufacturing, energy and food security and an efficient use of natural resources.

20.2.11 The Local Plan indicates that creating local employment opportunities is key to delivering economic growth. The decline of the traditional steel and chemical industries has impacted on many communities in Redcar and Cleveland leading to areas of deprivation and a declining population.

20.2.12 The Local Plan allocates land for specialist employment uses. The South Tees area including the Wilton International site (ED6.1) focusses on heavy processing industries and port logistics with support for development proposals falling within Use Classes B1, B2, B8 and suitable employment related *sui generis* uses.

20.2.13 The Local Plan places focus on the role of the South Tees Development Corporation (STDC). The Local Plan states that "*this substantial area of economic opportunity*" will "*drive economic growth and regeneration"* in the area.

South Tees Area Supplementary Planning Document (2018)

20.2.14 The South Tees Area Supplementary Planning Document (SPD; Redcar & Cleveland Borough Council, 2018b) supports the economic and physical regeneration of the South Tees Area. The SPD indicates that developments of this scale in the South Tees Area presents a significant opportunity to grow the economy of the Tees Valley and enhance its profile as a centre for industrial excellence. The SPD aims to create up to 20,000 new jobs in the South Tees Area with a focus on higher skilled sectors and occupations.

20.2.15 Objectives of the SPD include the priority of uses aligned with a low carbon, circular economy and uses connected with manufacturing and advanced and new technologies. The Site is identified in the SPD as being suitable for manufacturing and energy uses.

Stockton-on-Tees Local Plan (2019)

20.2.16 A Strategic Priority set out in the Stockton-on-Tees Local Plan is to '*encourage economic growth, job creation and a more entrepreneurial culture within the Borough, as a means of diversifying the economic base and strengthening existing economic strengths, clusters and sectors'*. The Plan also indicates that sufficient employment sites to ensure economic growth including in particular, the use of previously developed or under-used land.

Marine and Coastal Access Act (2009)

20.2.17 The Marine and Coastal Access Act ('MCAA') is the basis upon which the Marine Management Organisation (MMO) determine marine licensing determinations. As the Proposed Development will require works within the UK Marine Area (Section 42, MCAA), a Marine Licence will be sought from the MMO. Whether this is 'Deemed' within the DCO (the preferred option) or 'standalone', in reaching a determination, the MMO must consider several factors associated with marine works, including their potential to interfere with legitimate uses of the sea (Section 69, MCAA).

20.2.18 The MCAA sets out the legislative framework for the application of Marine Plans to relevant planning decisions in the UK Marine Area. Specifically, decisions affected by marine policy documents include '*the determination of any application […] for authorisation of the doing of any act which affects or might affect the whole or any part of the UK marine area'* (Section 58, MCAA).

20.2.19 As the Proposed Development includes works within part of the UK marine area, marine policy documents are relevant to the determination process for the project. In this instance, as prescribed by the MCAA, the published draft North East Inshore and Offshore draft marine plans are the appropriate marine policy documents.

North East Inshore and Offshore (Draft) Plans (2020)

20.2.20 The north-east inshore marine plan area covers an area of approximately 6,000 square kilometres of sea from the Scottish border to Flamborough Head, in Yorkshire; as the relevant marine planning authority, the MMO has prepared the draft marine plan (Section 51, MCAA).

20.2.21 The draft North East Marine Plan (NEMP) introduces a strategic approach to planning and provides an evidence-based approach to inform decision making by marine users and regulators. As well as recognising the potential for carbon capture, storage and utilisation infrastructure within the Teesside area (Section 1.3, NEMP), the plan includes topic-specific policies which support the development of low carbon projects. Specifically, policy 'NE-CCUS-2' sets out that '*Carbon Capture Usage and Storage proposals incorporating the re-use of existing oil and gas infrastructure will be supported'.*

20.2.22 The MMO concluded the latest round of consultation on the NEMP in April 2020 recently. This was the final stage of statutory public consultation before the NEMP is submitted to the Secretary of State for Environment, Food and Rural Affairs for adoption.

Other Guidance

20.2.23 The socio-economic assessment presented in this chapter is based upon a range of relevant guidance. This includes:

- Department for Business, Innovation & Skills (now BEIS) - *Research to Improve the Assessment of Additionality* (2009);
- The Green Book: *Central Government Guidance on Appraisal and Evaluation* (HM Treasury, 2018);
- The Magenta Book: *Guidance for Evaluation* (HM Treasury, 2011); and
- Homes and Communities Agency (HCA, now Homes England) - *Additionality Guide (Fourth Edition*) (2014).

20.3 Assessment Methodology and Significance Criteria

20.3.1 This assessment considers the role of the Proposed Development in the generation of direct and indirect employment opportunities at the local and regional level.

Use of The Rochdale Envelope

20.3.2 In order to ensure a robust assessment of the likely significance of the environmental effects of the Proposed Development, the EIA is being undertaken adopting the principles of the 'Rochdale Envelope' approach where appropriate in line with The Planning Inspectorate's guidance (The Planning Inspectorate, 2012. This involves assessing the maximum (or where relevant, minimum) parameters for the elements where flexibility needs to be retained (building dimensions or operational modes for example).

Impact Assessment and Significance Criteria

20.3.3 Where possible, socio-economic impacts have been appraised against relevant national standards, such as those provided by HM Treasury, the Department for Business, Energy and Industrial Strategy, and Homes England. Where relevant standards do not exist, professional experience and expert judgement have been applied.

20.3.4 The socio-economic assessment determines the:

- sensitivity of receptors;
- magnitude of impacts; and
- the consequent significance of effects.

20.3.5 The sensitivity of socio-economic receptors is assessed as high, medium, low or very low. The socio-economic receptors include those who will potentially benefit from employment generation (either directly, indirectly or induced (secondary impacts, for example due to construction workers spending money at local businesses)). The sensitivity of these receptors is considered to be high due to the availability of labour and skills in the local area required for the Proposed Development.

20.3.6 Section 20.4 (Baseline Condition) summarises the receptors that will be affected during construction and operation of the Proposed Development.

20.3.7 The magnitude of the impacts of the Proposed Development is assessed as being high, medium, low, or very low. This is determined by:

- extent of change – the absolute number of people affected and the size of area in which effects will be experienced (i.e. the level of change to baseline conditions including the proportion of the existing workforce); and

- scale of the impact – more weight is given to long-term, permanent changes than to short-term, temporary ones, where temporary and short-term impacts are considered to be those associated with the construction works (up to four years), and medium to long-term impacts are those associated with the operation of the Proposed Development (25 years or more) and aspects of the development that could extend beyond this (including the CO_2 Gathering Network, Compressor Station and CO_2 Export Pipeline.

20.3.8 The effects of the Proposed Development are defined as either:

- beneficial – an advantageous or beneficial effect on an impact area;
- negligible – an imperceptible effect on an impact area; or
- adverse – a disadvantageous or negative effect on an impact area.

20.3.9 Where an effect is assessed as being beneficial or adverse, the effect has been classified as minor, moderate, major or negligible. The assessment of significance is informed by the sensitivity of the receptor and the magnitude of impact as set out in Table 20-1. For the purposes of this assessment, 'significant' effects are those identified as being moderate or major (adverse or beneficial). Effects identified as being negligible or minor are 'not significant.'

Table 20-1: Classification of Effects on Socio-Economics

Magnitude of Impact	Sensitivity/importance of receptor			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

Extent of Study Area

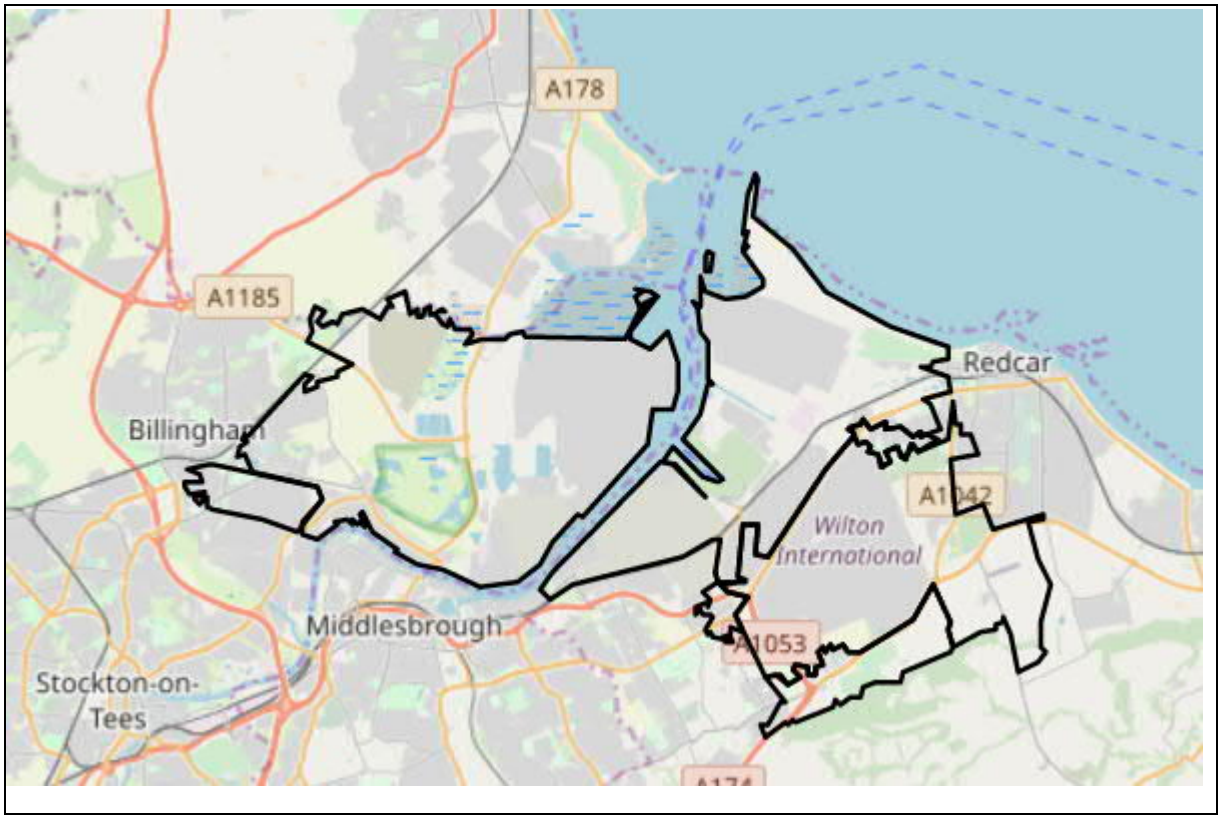
20.3.10 Office for National Statistics (ONS) statistical geographies have been used to define the Study Area for the socio-economic assessment as described below. The direct impact area has been taken to be Local Super Output Areas (LSOAs) that the DCO falls into. The wider impact area has been taken to be the Travel to Work Area (TTWA) that the DCO falls into.

20.3.11 There are 34,753 LSOAs across England and Wales with a minimum population of 1,000 and a maximum population of 3,000. The Site falls within the Redcar and Cleveland, and Stockton-on-Tees Local Authority areas. The LSOAs that the Site lies within are of Redcar and Cleveland 003D, 003E, 003F, 009B and 011B, and Stockton-on-Tees 003B and 004B.

20.3.12 Connections to the NGG and a CO_2 Gathering Network are intended to cross the River Tees to land within the administrative boundary of STBC and the LSOAs of Stockton-on-Tees 003B and 004B.

20.3.13 The seven combined LSOAs of Redcar and Cleveland (003D, 003E, 003F, 009B, 011B) and Stockton-on-Tees (003B and 004B) have been taken to be the Direct Impact Area of the Proposed Development.

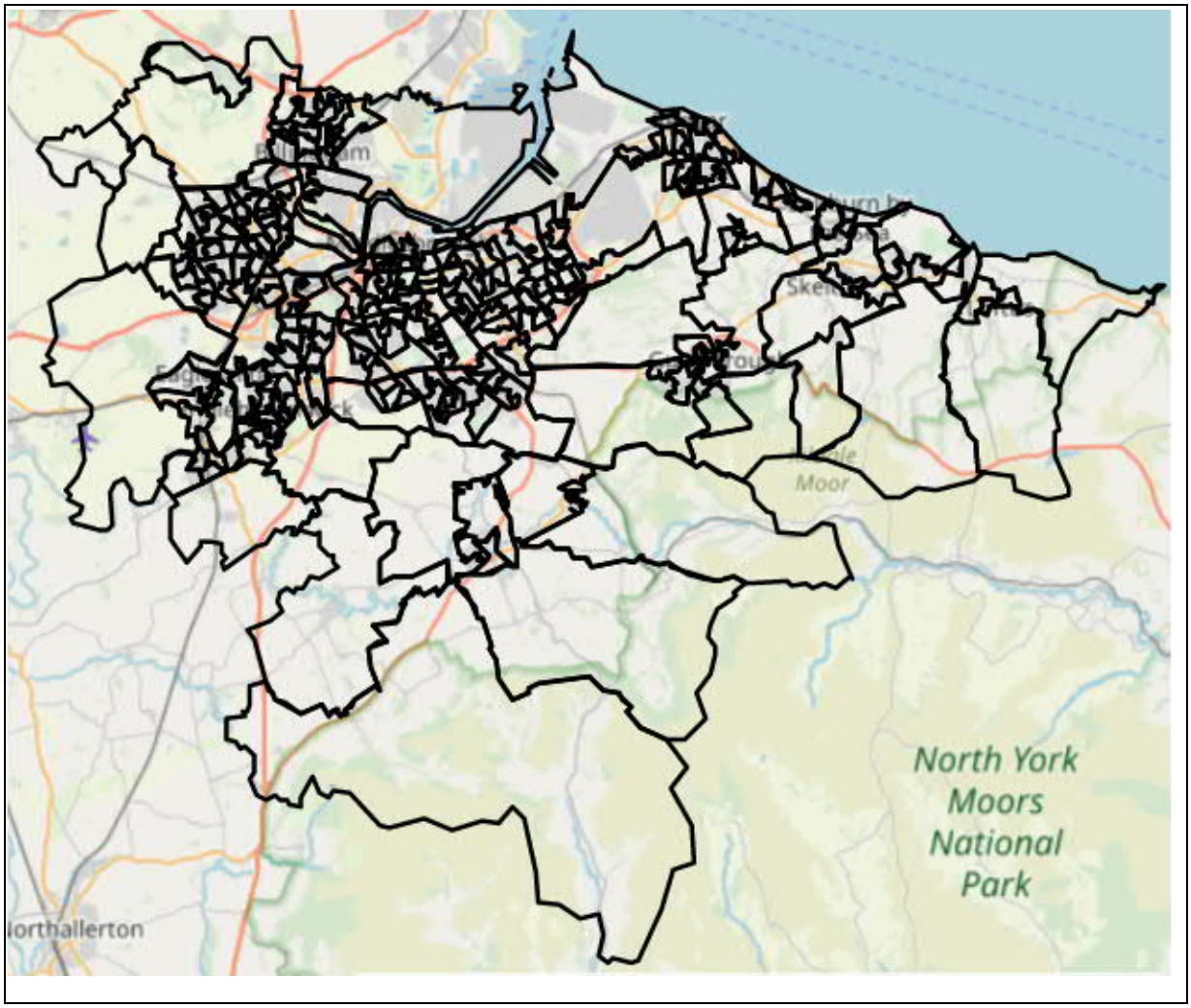
Picture 20-1: Map of Direct Impact Area (Redcar and Cleveland LSOAs 003D, 003E, 003F, 009B, and 011B, and Stockton-on-Tees 003B and 004B)



20.3.14 As well as understanding the socio-economic conditions surrounding the Site (as per the LSOA analysis), the socio-economic assessment also takes into account the principal labour market catchment area, or the TTWA. TTWAs contain at least 75% of the area's workforce that both live and work in the area. TTWAs have populations of at least 3,500 people. The Site falls within the Middlesbrough and Stockton TTWA which has been used as the wider impact area for the Proposed Development.

20.3.15 As the Proposed Development includes provision for marine works, the assessment also considers the key marine users that could be impacted by the project. For the purposes of the socio-economic assessment, there is no established guidance for defining a suitable Study Area or for undertaking a marine socio-economic assessment. For this reason, a holistic approach has been taken which considers a range of marine receptors within the surrounding North Sea informed by engagement with the Marine Management Organisation and other relevant marine stakeholders.

Picture 20-2: Map of Wider Impact Area (Middlesbrough and Stockton TTWA)



20.3.16 This assessment outlines the socio-economic context of the TTWA and makes comparisons to the whole of England. Key indicators include population and labour force; skills and unemployment; industry and the economy.

Consultation

20.3.17 The Scoping Opinion Report was submitted in February 2019 and Scoping Opinion was received from the Planning Inspectorate in April 2019; these documents are provided within the PEI Report: Appendix 1A: PEI Report, Volume III. A summary of the socio-economics related response is included in Table 20-2.

Table 20-2. Response to Comments Raised in the Scoping Opinion

Consultee	Date	Comments raised	Response provided in PEI Report
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.1 - Tourism** The ES should assess impacts on the areas of public/private amenity which are noted in Chapter 2 - Description of the Existing Environment of the Scoping Report.	Tourism, including tourist use of the local amenities, has been considered within this chapter.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.2 - Areas of public / private amenity** The ES should assess impacts on the areas of public/private amenity which are noted in Chapter 2 - Description of the Existing Environment of the Scoping Report.	The public/private amenities mentioned in Chapter 2 of the Scoping Opinion have been assessed.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.3 - Scope of the assessment** The Scoping Report gives a very broad description of the data that will be gathered to inform the ES. The ES should explain the methodology applied to the assessment, including the data sources used, consultation undertaken, the methodology applied to determining significance of effects, and any limitations encountered. Specific methodologies should be adopted for each matter assessed as part of this aspect chapter (i.e. different criteria are likely to be required to determine the significance of effects on employment, recreational users and PRoW users).	Assessment methodologies have been set out in the chapter. These will be refined at the Environmental Statement stage.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.4 - Scope of the assessment** The Inspectorate notes that professional experience and judgement will be applied where no standards exist. Any use of professional judgement should be clearly explained within the ES.	Professional judgement has been used in the chapter, as outlined in the methodology and has been clearly explained when used.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.5 - Employment** The ES should include a breakdown of likely jobs and roles created by the Proposed Development and any mitigation measures such as skills and training programmes that would promote local employment. This should include consideration of the potential to create apprenticeship opportunities during construction and operation.	This has been assessed in the chapter.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.6 - Employment** Employment could result in an increase of migration to the local area, which may increase demand on community facilities such as GPs as a result. This matter should be assessed within this aspect of the ES.	This has been assessed in the chapter.

Consultee	Date	Comments raised	Response provided in PEI Report
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.7 - PRoW** The Scoping Report notes that PRoW may be temporarily disrupted during construction. The ES should state whether any temporary diversions are proposed, their duration and how such mitigation would be secured. Appropriate cross reference should be made to the Traffic and Transportation chapter within the ES.	Impact on PRoW has been considered from the data available at present.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.8 - Health and Safety** The Scoping Report identifies the potential for health and safety impacts to arise but does not provide further detail regarding the proposed assessment of these impacts. The ES should set out the proposed methodological approach for assessing these matters.	Health and Safety impacts are summarised in Chapter 23: Population and Human Health (PEI Report, Volume I).
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.9 - Businesses** The Scoping Report states that the impact of the Proposed Development on businesses will be assessed. The ES should clearly state the methodology for the assessment of this matter, identify the businesses that will be considered as sensitive receptors and seek to agree this with the relevant local authorities.	Businesses that fall within the proposed Study Area have been assessed.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.10 - Recreational activities and land use** The ES should clearly state the 'other land use' impacts that have been assessed or considered.	Other land use impacts include Public Rights of Way.
Secretary of State (Scoping Opinion)	**April 2019**	**4.10.11 - Recreational activities and land use** The ES should confirm whether beach closures would be required for construction of the water connection and/or the CO_2 transport connection. Impacts to beach users should be assessed within the ES.	This has been considered in the chapter.

20.3.18 Additional marine-specific engagement was undertaken with the following stakeholders:

- Marine Management Organisation (September 2019 and February 2020);
- Maritime and Coastguard Agency (February 2020);
- PD Teesport (December 2019);
- Trinity House (February 2019);
- Teesside Offshore Windfarm T/O EDF Energy Renewables (December 2019);
- Royal Yachting Association (February 2020); and
- North Eastern Inshore Fisheries Conservation Authority (September 2019).

Sources of Information/Data

20.3.19 The following ONS datasets have been reviewed to inform the assessment: Census of Population (2011); Jobseeker's Allowance by Occupation (2018) and Population Projections (2016).

20.3.20 The following marine datasets have also been reviewed to inform the assessment: Marine Licences and Applications (2020); KIS-ORCA Offshore Renewable & Cables Awareness (2020); MMO Offshore Wind Resource Areas (2020); MMO Marine Vessel Density Grid (2015); Royal Yachting Association Yachting Activity (2019); UK Marine Landings Data (2018); UK Sea Fisheries Statistics (2017) and UK Coastal Atlas of Recreational Boating (2018).

20.3.21 This report draws on the Net Zero Teesside, Economics Benefits Report (Vivid Economics, 2020 – see Appendix 20A, PEI Report, Volume III).

20.4 Baseline Conditions

20.4.1 This section outlines the socio-economic baseline conditions in the Direct Impact Area, Wider Impact Area and England. The Direct Impact Areas comprises of LSOAs that the Proposed Development fall into. The Wider Impact Area is comprised of the TTWA the Proposed Development is located in (Middlesbrough and Stockton TTWA).

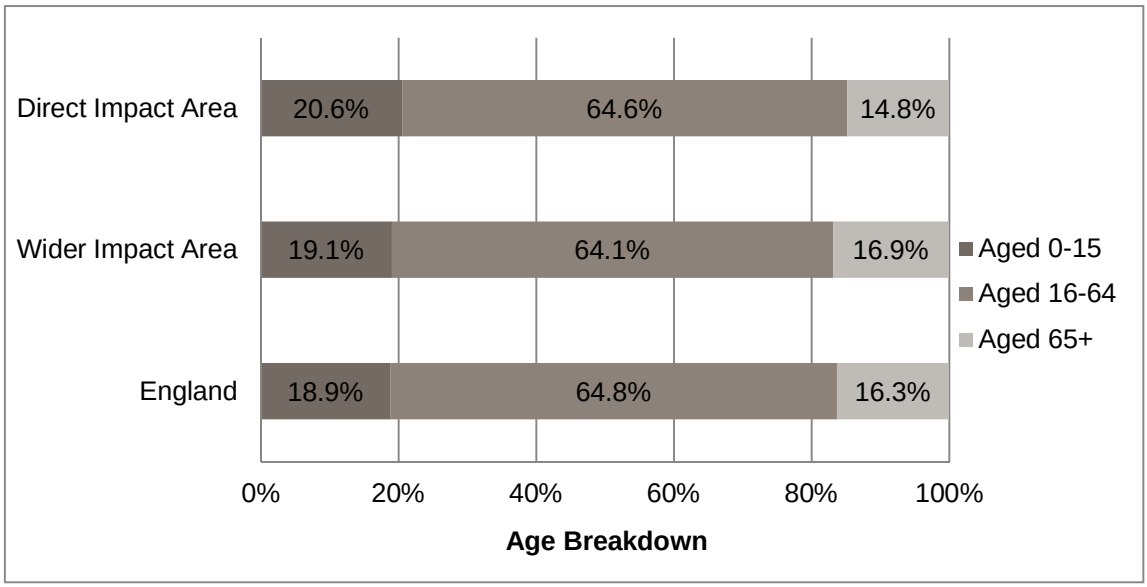
20.4.2 The local labour market in the Wider Impact Area is the main receptors in the assessment for employment effects. The baseline conditions help to determine the impact of employment generated by the Proposed Development, and the impact of the Proposed Development on tourism and other local businesses. The impact is mostly influenced by the size of the labour market and whether it has the relevant skills, occupations and sector strengths to access employment opportunities.

Existing Baseline

Demographic Profile

20.4.3 The 2011 Census data shows that the Direct Impact Area had a population of 10,054, while the wider impact area had a population of 481,619 (ONS, 2011). Picture 20-3 shows that the Direct Impact Area has a slightly larger proportion of young people (aged 0 to 15) than the Wider Impact Area and England. The Direct Impact Area has a comparable proportion of working age population (aged 16 to 64) as England, and slightly larger than the Wider Impact Area. The Direct Impact Area has a lower proportion of older residents (aged 65+) than both the Wider Impact Area and England.

Picture 20-3: Age Breakdown of Population



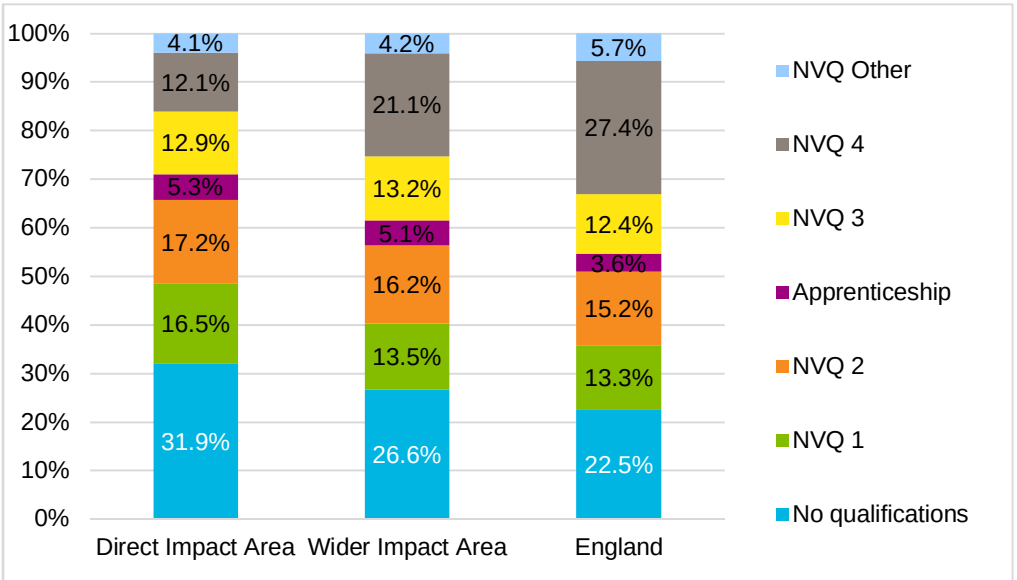
Source: Census 2011, ONS

Skills

20.4.4 Qualifications levels differ noticeably between each of the geographies (see Picture 20-4). In the Direct Impact Area, 16.5% were qualified to NVQ 1, this is higher than both the Wider Impact Area (13.5%) and England (13.3%).

20.4.5 Just under a third (31.9%) of the Direct Impact Area had no qualifications at all. This is noticeably higher than both England (22.5%) and the Wider Impact Area (26.6%). Similarly, there is a slightly higher level of those qualified to NVQ 2 in the Direct Impact Area (17.2%) compared to the Wider Impact Area (16.2%) and England (15.2%). There is a smaller proportion of higher qualified people within the Direct Impact Area. The proportion with NVQ 4 qualifications drops from 27.4% in England to 21.1% in the Wider Impact Area and drops further, to 12.1% in the Direct Impact Area.

Picture 20-4: Qualification levels



Source: Census 2011, ONS

Employment

20.4.6 Employment in the Direct Impact Area is distributed differently to employment in the Wider Impact Area and England. 'Wholesale and retail trade', is the largest sector by employment for all three of the geographical areas, but it is slightly lower in the Direct Impact Area (16.2%) than the Wider Impact Area (17.2%). Manufacturing is the next largest sector in the Direct Impact Area (9.4%) and sits in the middle of the Wider Impact Area (11.5%) and England (8.8%).

20.4.7 There are fewer people employed in serviced-based sectors in the Direct Impact Area than England. This is shown in the 'Information and communication' sector that employs 2.2% of people in the Direct Impact Area compared to 4.1% in England. Although the proportion of the population employed in service-based industries in the Direct Impact Area is lower than England, it is slightly higher than the Wider Impact Area. This is evident in the 'Financial and insurance activities' sector which employs 2.6% of the Direct Impact Area and only 1.9% of the Wider Impact Area. 'Education' is a larger employment sector in the Direct Impact Area (10.1%) than in the Wider Impact Area (7.9%) but is comparable to England (9.9%).

20.4.8 The economic activity rate is lower in the Direct Impact Area (64.9%) than both the Wider Impact Area (65.6%) and England (69.9%). There are 4,713 people in the Direct Impact Area that are economically active. There is a lower proportion of the Direct Impact Area (33.4%) that are in full-time employment than in the Wider Impact Area (34.5%) and England (38.6%). This is not the case for part-time employment where the proportion in the Direct Impact Area (15%) is comparable to the Wider Impact Area (15.4%) and higher than England (13.7%).

Table 20-3: Employment by Sector

Sectors	Direct Impact Area	Wider Impact Area	England
Agriculture, forestry and fishing	0.5%	0.4%	0.8%
Mining and quarrying	1.1%	0.8%	0.2%
Manufacturing	9.4%	11.5%	8.8%
Electricity, gas, steam and air conditioning supply	1.1%	1.0%	0.6%
Water supply; sewerage, waste management and remediation activities	0.7%	1.1%	0.7%
Construction	8.4%	9.0%	7.7%
Wholesale and retail trade; repair of motor vehicles and motorcycles	16.2%	17.2%	15.9%
Transport and storage	4.8%	5.7%	5.0%
Accommodation and food service activities	5.6%	6.9%	5.6%
Information and communication	2.2%	1.7%	4.1%
Financial and insurance activities	2.6%	1.9%	4.4%
Real estate activities	1.4%	1.1%	1.5%

Sectors	Direct Impact Area	Wider Impact Area	England
Professional, scientific and technical activities	5.1%	3.6%	6.7%
Administrative and support service activities	4.5%	6.2%	4.9%
Public administration and defence; compulsory social security	6.5%	5.2%	5.9%
Education	10.1%	7.9%	9.9%
Human health and social work activities	15.5%	14.3%	12.4%
Other	4.3%	4.4%	5.0%

Source: Census 2011, ONS

20.4.9 The level of unemployment in the Direct Impact Area (9.1%) is higher than both the Wider Impact Area (6.4%) and England (4.4%). In the Direct Impact Area, 4.9% are self-employed, this is lower than the Wider Impact Area and England whose proportion of those self-employed is 6.1% and 9.8% respectively. Table 20-4 breaks down the economic activity for each of the areas.

Economic Activity

Table 20-4: Economic Activity

	Direct Impact Area		Wider Impact Area		England	
	Number	%	Number	%	Number	%
In employment	3,865	53.3%	197,305	56.0%	24,143,464	62.1%
Employee: Part-time	*1,086*	*15.0%*	*54,211*	*15.4%*	*5,333,268*	*13.7%*
Employee: Full-time	*2,425*	*33.4%*	*121,478*	*34.5%*	*15,016,564*	*38.6%*
Self-employed	*354*	*4.9%*	*21,616*	*6.1%*	*3,793,632*	*9.8%*
Economically active: Unemployed	660	9.1%	22,561	6.4%	1,702,847	4.4%
Economically active: Full-time student	188	2.6%	11,354	3.2%	1,336,823	3.4%
Total	4,713	64.9%	231,220	65.6%	27,183,134	69.9%

Source: Census 2011, ONS

20.4.10 Table 20-5 shows the economic inactivity rates for all of the three chosen geographies. There is a higher proportion of those in the Direct Impact Area (35.1%) that are economically inactive than the Wider Impact Area (34.4%) and England (30.1%). Retirees make up the largest proportion of those economically inactive in all three areas. In the Direct Impact Area, 14.1% are retired, this is a lower proportion than the 16.1% in the Wider Impact Area but is comparable to 13.7% of those in England.

Table 20-5: Economic Inactivity

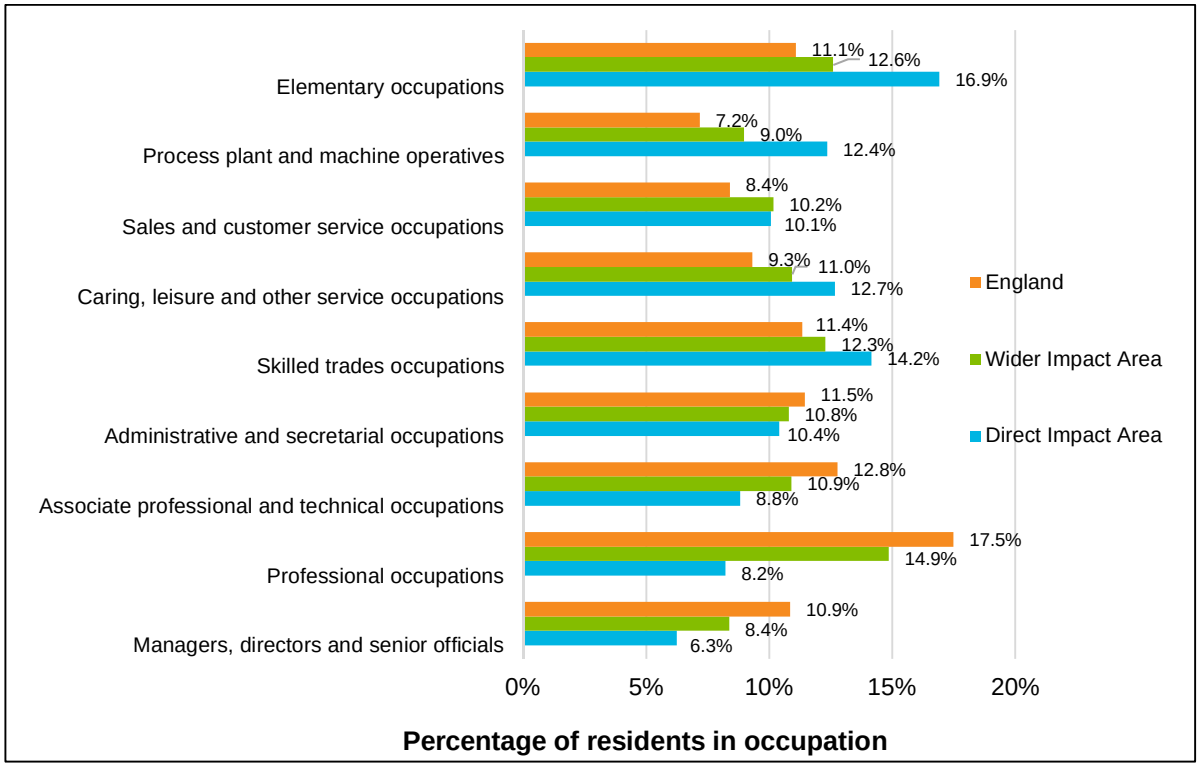
	Direct Impact Area		Wider Impact Area		England	
	Number	%	Number	%	Number	%
Retired	1,023	14.1%	56,746	16.1%	5,320,691	13.7%
Student (including full-time students)	325	4.5%	19,364	5.5%	2,255,831	5.8%
Looking after home or family	424	5.8%	16,258	4.6%	1,695,134	4.4%
Long-term sick or disabled	571	7.9%	19,839	5.6%	1,574,134	4.0%
Other	202	2.8%	8,983	2.5%	852,450	2.2%
Total	202	35.1%	121,190	34.4%	11,698,240	30.1%

Source: Census 2011, ONS

20.4.11 There are some noticeable differences in the workforce occupation profile between the different geographical areas. The largest proportion of the population in the Direct Impact Area is employed in ‘Elementary occupations’ (16.9%). This is much larger than the Wider Impact Area (12.6%) and England (11.1%). The second largest occupation is ‘Skilled trades occupations’ which makes up 14.2% of the Direct Impact Area. This again is higher than both the Wider Impact Area (11%) and England (9.3%).

20.4.12 There are significantly fewer residents occupied in ‘Professional occupations’ in the Direct Impact Area with only 8.2% compared to 14.9% and 17.5% for the Wider Impact Area and England respectively. There are also fewer ‘Managers, directors and senior officials’ in the Direct Impact Area (6.3%) compared to the Wider Impact Area (8.4%) and England (10.9%). Figure 20-5 displays the breakdown of the categories.

Picture 20-5: Workforce Occupations



Source: Census 2011, ONS

Community Facilities

20.4.13 The villages of Old Lackenby, Lazenby and Port Clarence all lie within the Study Area. There are various settlements within 500m of the boundary being Grangetown. Kirkleatham and Dormanstown. The largest residential area close to the Site is the city of Middlesbrough which is just over 1km away.

20.4.14 Within the residential areas listed above there are a number of educational facilities. High Clarence Primary School is the only school that is within the boundary. There are a variety of primary schools within 500 m of the Site, these are: Wilton Primary School (200 m); Dormanstown Primary School (280 m); St Mary's Roman Catholic Primary School (360 m); and Grangetown Primary School (350 m); and Whale Hill Primary School (380 m). Pathways Secondary school (450 m), South Avenue Nursery (460 m), The Prior Day nursery (500 m) and the disability and Special Educational Needs (SEN) focussed Kirkleatham Hall School (475 m) are all within close proximity to the Site.

20.4.15 The Port Clarence Health Centre and Dr H V Lumburu, Dr Geoghegan and Partners medical practices share the same building within Port Clarence in the Site boundary as well as Brookfield Care Home. Sir William Turner's Hospital in Kirkleatham is the only hospital but there are several other medical facilities such as Woodford Dental Services; Belasis Dental Practice; The Easton Surgery and Whale Hill pharmacy are located within 500 m of the Site.

Local Businesses

20.4.16 Business parks in close proximity to the Site include Teesport Estate (falling within the Site boundary), Seal Sands Terminal (falling within the Site boundary), Bolckow Industrial Estate (adjacent to the Site boundary), Warrenby Industrial Estate (150 m) and Havertown Hill (400 m).

20.4.17 The businesses located in these areas are mainly involved in manufacturing; most notably, chemical, oil and metal processing and production. These include British Steel; Biffa Polymers and Tarmac. Other businesses within the Site boundary within the Teesport Estate include the Asda import centre, chemical manufacturer Kemira. Northumbrian Water is also located just outside of the proposed Site boundary.

Public Rights of Way

20.4.18 There are multiple Public Rights of Way (PRoW) close to Site, with some falling in the Site boundary. These are illustrated in Figure 3-5 (PEI Report, Volume II).

20.4.19 The PCC is close to bridleways 116 33/1, 116 36/1, and 116 32/1 to the east of the PCC and the Teesdale Way runs along the northern boundary. To the south of the PCC is footpath 116 31/2.

20.4.20 Within 500 m of the Proposed Development are bridleways in and around Lazenby Bank, the England Coast Path and various footpaths in and around Yearby Wood, Lazenby Bank and Leckenby A number of PRoW are located within the gas and electrical connection corridors including Bridleways 116/10, 102/194 (Grangetown to Lackenby) and 116/9 as well as footpaths 102/193 (Lackenby to Lazenby), 116 31, 102/2 and 102/2A.

Tourism and Amenity

20.4.21 There is recreational fishing that takes place at South Gare breakwater. The local Fishing club, South Gare Fisherman's Association, operates on South Gare breakwater. Access to the breakwater is from a private road off Tod Point Road, Warrenby.

20.4.22 There are local walking amenities used by recreational walkers. The Tees Bay, Coatham Sands and the South Gare are all popular walking destinations within the direct vicinity of works.

20.4.23 A popular tourism destination in the area is Redcar Beach Caravan Park. This is over 1 km from the PCC. Cleveland Golf Links, a local golf course, is also located directly to the east of the Proposed Development.

Marine Baseline

20.4.24 This chapter is accompanied by a Navigational Risk Assessment (Appendix 20B, PEI Report, Volume III) which presents a qualitative assessment of navigational risk associated with the Proposed Development. A detailed baseline understanding of local marine activity has been established informed by engagement with relevant marine stakeholders. Baseline information relevant to the Socio-Economic Assessment is summarised below.

Vessel Density

20.4.25 Automatic Identification System (AIS) data can be used to provide an insight into the average vessel density in the area surrounding the Site. AIS is a maritime safety communications system adopted by the International Maritime Organisation (IMO) in order to provide vessel information, primarily for maritime safety purposes; AIS also provides a source of information to spatially represent vessel movements to help inform planning. AIS signals can be broadly categorised as Class A and Class B; Class A ('AIS-A') is carried by large, international ships with a gross tonnage (GT) of 300 tonnes or more and all passenger vessels. Class B ('AIS-B') is carried by smaller vessels and is typically found on small commercial vessels, some fishing vessels and recreational vessel users. Whilst useful to characterise high-level shipping trends, AIS does have limitations; most notably, AIS provides a characterisation of commercial shipping but omits commercial vessels <300GT, recreational vessels, fishing vessels as well as military and governmental vessels whilst on deployment.

20.4.26 Based on 2015 MMO data, the Site spans ten density grids which are summarised below against weekly average vessel density:

- Grid cell ID 200,808: 7.33;
- Grid cell ID 200,809: 14.50;
- Grid cell ID 200,810: 57.25;
- Grid cell ID 200,811: 102.42;
- Grid cell ID 201,340: 199.42;
- Grid cell ID 201,869: 182.67;
- Grid cell ID 201,870: 29.25;
- Grid cell ID 201,871: 0.17;
- Grid cell ID 202,400: 19.58; and
- Grid cell ID 202,399: 157.42.

20.4.27 The density grids above overlap with several aspects of the Proposed Development which are within the UK Marine Area. This includes: the CO_2 Export Pipeline; the CO_2 Gathering Network; the Natural Gas Connection Corridor and; Water Connection Corridors.

20.4.28 AIS data can be represented visually as density grids – 'or heat maps' – and via vessel transects. For the purposes of this assessment, Figure 20A-1: Vessel Density Grid (PEI Report, Volume III) represents the density grids detailed above.

20.4.29 As is expected given the presence of Teesport, the higher density grids are those found within the navigational channel directly into the Estuary (i.e. 202,399, 201,869) and within the 'inner' area of Teesport itself (200,808, 200,809, 200,810, 200,811, 201,340).

20.4.30 Grids to the north-east are also higher in density, representing the primary routes of commercial vessels leaving Teesport (i.e. 202,929, 202,399).

20.4.31 The density grid directly to the east of the Estuary mouth (201,871) is much lower in density which is primarily due to this being a predominantly non-navigable area featuring sandbanks, shallows and the foreshore itself. To the north and east of this density grid, there may be some areas of navigable water.

Port Activity

20.4.32 The Site is partly within the jurisdiction of Teesport, a major UK Port which is owned and operated by PD Ports as the statutory harbour authority. Teesport handles approximately 28 million tonnes per of shipping per year with dry-bulk and project cargoes (including metals, steel, agri bulk and forest products) being primary offerings. Teesport is also a major port supporting the oil and gas, chemical and petrochemical industries. Whilst in close proximity to the Teesside Offshore Wind Farm (OWF), the majority of vessel activity related to the OWF originates from other operation and maintenance bases at Hartlepool. Whilst appreciating the limitations of AIS data referenced above, the vessel density grids provide a useful estimate for Teesport traffic given the majority of vessel types accessing the facility are required to utilise AIS-A or have opted to utilise AIS-B.

Marine Works

20.4.33 Data published by the MMO via the Marine Case Management System (MCMS) and the Marine Information System (MIS) indicates the presence of several ‘active’ Marine Licences within the vicinity of the Site:

- 35097/110302/2 (Dredging Licence – PD Teesport Limited);
- MLA/2015/00334/4 (Dredging Licence – Able UK Limited);
- 32421/040319/13 (Export Cable Area Construction Licence – Teesside Windfarm Limited);
- MLA/2017/00409 (Teesside Offshore Windfarm Operation and Maintenance Licence – Teesside Windfarms Limited); and
- MLA/2014/00580 (Other Removals Licence – Teesside Windfarm Limited).

Recreational Sailing

20.4.34 The Royal Yachting Association (RYA) UK Coastal Atlas of Recreational Boating provides a Geographical Information System (GIS) dataset of recreational boating activity around the UK. The dataset provides spatial data which indicates intensity of recreational use, general boating areas, racing areas and cruising areas. It also provides the location of RYA clubhouses, training centres and marinas.

20.4.35 The Site is within a ‘General Boating Area’ but is not within any racing or cruising areas.

20.4.36 The Site is within the vicinity of South Gare Marine Club (Sail Section); at the closest point, the water connection corridor for the Site is 1 km from the club.

Recreational Walkers

20.4.37 The Tees Bay, Coatham Sands and the South Gare are all popular walking destinations within the direct vicinity of works. Whilst of relevance to the

marine baseline, this activity is already captured within the terrestrial aspects of the socio-economics assessment and is included here for confirmation only.

Other Recreational Activity

20.4.38 The British Sub Aqua Club (BSAC) maintain a scuba diving club, 'BSAC Teesside 43,' at the South Gare Breakwater. At the closest point, the water connection corridor for the Site is 1 km from the diving club.

20.4.39 There are no published datasets available for surf or kitesurfing activity, however the Tees Bay and 'The Gare' is reported locally as a popular location for these activities.

Commercial Fishing

20.4.40 The International Council for the Exploration of the Sea (ICES) standardise the division of sea areas to underpin statistical analysis around the UK; this is achieved through 'ICES Rectangles.' Each ICES rectangle is approximately 30 nautical miles by 30 nautical miles and has a unique identification reference. The Site is within ICES rectangle '38E8'. Commercial fishing activity within this area is primarily characterised by lobsters, (Nephrops), whiting and crabs caught primarily with 10 m and under vessels.

20.4.41 There are inherent challenges in characterising commercial fishing activity, primarily due to omissions in catch data gathered as part of the official statistics process. Chapter 14: Marine Ecology and Nature Conservation (PEI Report, Volume I) and supporting appendices explore the current baseline for commercial fishing activity in the vicinity of the Site in detail.

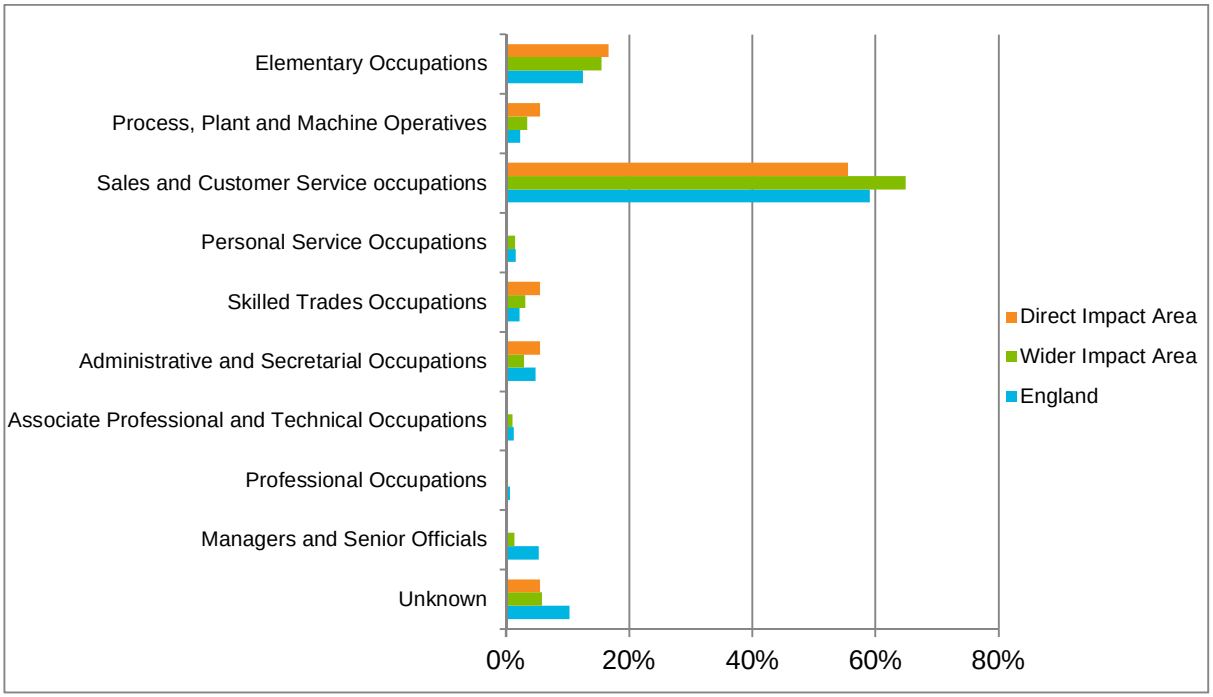
20.4.42 The closest of these features is the Teesside OWF export cable which overlaps with the marine segment of the CO_2 Export Pipeline (i.e. the portion of the corridor between MHWS and MLWS).

Future Baseline

20.4.43 This section outlines the future socio-economic baseline conditions in the Direct Impact Area, Wider Impact Area and England. The future baseline conditions help to identify any changes anticipated in the baseline conditions in the absence of the Proposed Development.

20.4.44 Demand for employment in different sectors can be considered with jobseeker data, included most sought-after occupations. The most sought-after occupation by jobseekers in the Direct Impact Area is 'Sales and Customer Service occupations' (56% in August 2019), followed by 'Elementary occupations' (17% of jobseekers). 'Sales and Customer Service occupations' is also the most sought-after category for the Wider Impact Area (65% of jobseekers) and England (60% of all jobseekers) followed by 'Elementary occupations' (16% of jobseekers in the Wider Impact Area and 13% in England). This is shown in Figure 20-6.

Picture 20-6: Sought After Occupations



Source: Jobseeker's Allowance by Occupation (ONS, 2019) – data for August 2019

20.5 Development Design and Impact Avoidance

20.5.1 For the terrestrial aspects of the Proposed Development, development design or impact avoidance measures relevant to socio-economics have been included. This includes limiting the number of PRoW crossing the Site boundary. .

20.5.2 For the marine aspects of the Proposed Development – i.e. the water connection corridors and the CO_2 Export Pipeline, the design of the development and impact control measures are of relevance.

Infrastructure Re-Use

20.5.3 As described in Chapter 4: Proposed Development and Chapter 5: Construction Programme and Management (PEI Report, Volume I), the project will seek to re-use existing infrastructure within the water connection corridors. It is anticipated that only minimal works will be required within the marine environment (i.e. basic refurbishment works, as noted in Chapter 4: Proposed Development, PEI Report, Volume I).

Discharge Pipeline and CO_2 Export Pipeline (Foreshore Crossing)

20.5.4 In the event that the replacement of infrastructure is required, the approach for the replacement of the discharge pipeline may use trenchless technologies for a large portion of the foreshore crossing if UXO risk can be mitigated. A similar approach will be followed for the marine segment of the CO_2 Export Pipeline if possible. For both crossings, this will ensure that disruption to users of the foreshore and surrounding area is reduced as far as reasonably practicable.

Marine Licence Conditions

20.5.5 Should replacement of infrastructure be required, various works will be required within the marine environment; this is described in detail within Chapter 4: The Proposed Development and Chapter 5: Construction Programme and Management (PEI Report, Volume I), but in summary, is likely to include some or all of the following:

- preparatory dredging and/or other capital dredging;
- cofferdam installation and removal;
- screening/intake construction and maintenance works;
- piling (vibratory, percussive and drilled 'pin piles');
- pipeline assembly works (fabrication, jointing, connections and ancillary commissioning works);
- trenchless technology jacking rig; and
- supporting vessel activities (jack-up barge(s), dredger(s), work boat(s) and North Sea barge(s) to support works)

20.5.6 The majority of these activities would be subject to the requirement of a Marine Licence from the MMO; whether standalone or 'deemed' within the DCO, the preferred option. The licence is likely to include several conditions to help mitigate against any interruption to other '*legitimate uses of the sea*' (Section 69, MCAA). These may include but are not limited to:

- Construction methodology (this is typically required ahead of commencement of works such that the MMO can ensure works are compliant with the legislative requirements of the MCAA, including ensuring minimal disruption to legitimate uses of the sea);
- Notice(s) to mariners (this is a published notice typically issued by a local harbour authority informing other marine users of marine works, their nature and duration);
- Navigational Risk Assessment (see Appendix 20B, PEI Report, Volume III);
- Fisheries Liaison Officer (FLO) (this is an appointed single point of contact to liaise between the Marine Licence applicant and local commercial fishers); and
- Construction and/or Project Environmental Management Plan – CEMP/PEMP (whilst typically focused on managing and mitigating against ecological effects from plant equipment and construction operations, the plan may also have relevance to minimising disruption to other marine users).

20.5.7 In the refurbishment scenario, only very minor works are likely to be required within the marine environment, but it is likely that they would be subject to some of the conditions noted above for the replacement scenario.

20.6 Likely Impacts and Effects

Effects During the Construction Phase

20.6.1 The following section estimates gross construction employment arising from the Proposed Development and then takes into account leakage, displacement and multiplier effects (to assess indirect and induced employment) in order to assess net impacts on the sub-regional and national economies.

Employment

20.6.2 Using the single train option as a worst case, construction of the Proposed Development anticipated to take up to four years between 2022 and 2026. During this time employment opportunities will be created as a result of the works. Although these jobs are temporary, they represent a positive economic impact that can be estimated as a function of the scale and type of construction. The direct expenditure involved in the construction phase will lead to increased output generated in the Middlesbrough and Stockton TTWA economy.

20.6.3 The average number of gross construction workers over the peak years have been conservatively estimated at 1,760 for construction of a single train (Vivid Economics, 2020 - see Appendix 20A, PEI Report, Volume II) during the peak of construction (identified by Vivid as 2023 to 2025). Construction of three trains would employ up to 2,440 construction workers.

Leakage

20.6.4 Leakage effects refer to the proportion of jobs within an Impact Area that are filled by residents living outside the Impact Area (i.e. outside the Wider Impact Area, defined as the Middlesbrough and Stockton TTWA).

20.6.5 Using a 13% leakage figure, in line with the proportion of jobs taken by non-residents of the Middlesbrough and Stockton TTWA, was considered but this was seen as too low to account for the high skilled construction employment positions expected to be required on the construction of the Proposed Development. This is acknowledged in Vivid Economics' Economic Benefits Report, where a potential skills gap is noted, being especially wide during the construction phase (Appendix 20A, PEI Report, Volume II).

20.6.6 A high leakage figure has therefore been considered appropriate to account for the construction phase. HM Treasury Additionality Guidance suggests a high rate of leakage of 50%. Therefore 50% discount is therefore applied to the 1,760 gross jobs created per year and as such it is conservatively estimated that 880 people from outside the Middlesbrough and Stockton TTWA and 880 from within will benefit from working at the Proposed Development each year during the construction period.

Displacement

20.6.7 Displacement measures the extent to which the benefits of a project are offset by reductions of output or employment elsewhere. Any additional demand for labour cannot simply be treated as a net benefit, it removes

workers from other posts, such as other construction project, and the net benefit is reduced to the extent that this occurs.

20.6.8 Overall it is assumed that due to the flexibility of a typical construction workforce (i.e. it is possible for workers to move from project to project) displacement effects are considered to be low. The HCA Additionality Guide suggests using 25% as a 'ready reckoner' for low levels of displacement, for example when there are expected to be some displacement effects, although only to a limited extent. Applying this low level of displacement to total gross direct employment results in net direct employment of 1,320 jobs per year.

Multiplier Effect

20.6.9 In addition to the direct construction employment generated by the Proposed Development itself there will be an increase in local employment arising from indirect and induced effects of the construction activity. Employment growth will arise locally through manufacturing services and suppliers to the construction process (indirect or supply linkage multipliers). Additionally, part of the income of the construction workers and suppliers will be spent in the Middlesbrough and Stockton TTWA, generating further employment (induced or income multipliers).

20.6.10 Construction employment is assessed with a multiplier of 1.85[1]. Applying this multiplier of 1.85 generates an additional 1,120 indirect and induced jobs in the Middlesbrough TTWA arising from the Proposed Development during the construction period.

Net Construction Employment

20.6.11 Based on the gross construction worker requirements for construction of the Proposed Development and the additionality factors outlined above, 2,440 net construction jobs would be generated, of which 1,220 are expected to be from the Middlesbrough and Stockton TTWA.

Table 20-6: Net Construction Employment in Middlesbrough and Stockton TTWA (average no. of workers onsite per year of construction)

	Middlesbrough and Stockton TTWA	Outside of Middlesbrough and Stockton TTWA	Total
Gross Direct Employment	**880**	**880**	**1,760**
Displacement	220	220	440
Net Direct Employment	660	660	1,320
Net Indirect/Induced Employment	560	560	1,120
Total Net Employment	**1,220**	**1,220**	**2,440**

Source: AECOM calculation (2019)

Presents the short-term employment created by the Proposed Development taking leakage, displacement and multiplier effects into account.

[1] Input-Output Tables 1998-2014 - Leontief Type 2 Table, Scottish Government. Type II employment multiplier for the construction industry (2014). Standard practice for multipliers for specific industries.

Table 20-6: Net Construction Employment in Middlesbrough and Stockton TTWA (average no. of workers onsite per year of construction)

	Middlesbrough and Stockton TTWA	Outside of Middlesbrough and Stockton TTWA	Total
Gross Direct Employment	**880**	**880**	**1,760**
Displacement	220	220	440
Net Direct Employment	660	660	1,320
Net Indirect/Induced Employment	560	560	1,120
Total Net Employment	**1,220**	**1,220**	**2,440**

Source: AECOM calculation (2019)

20.6.12 The sensitivity of receptors is considered as high. Taking into account the size of the labour pool of construction workers in the Middlesbrough and Stockton TTWA (11,000 (ONS, 2018), the magnitude of impacts is considered to be high. For example, the gross direct employment (in the TTWA) required during the construction phase of the Proposed Development would account for around 11% of the existing construction workforce in the Middlesbrough and Stockton TTWA, and likely to require high skilled construction workers from outside the area. Therefore, the direct, indirect and induced employment created by the construction phase of the Proposed Development is likely to have a major beneficial short-term (significant) effect on the Middlesbrough and Stockton TTWA's economy.

20.6.13 Construction phase effects are assessed on the basis of ten years of construction worker jobs being equal to one Full Time Equivalent (FTE job), as per HM Treasury Guidance. The anticipated construction manpower generated by the Proposed Development is therefore calculated as the equivalent of approximately 240 FTE permanent jobs during the construction period.

Wider Impacts and Effects During the Construction Phase

Temporary Workers Accommodation

20.6.14 The construction of the Proposed Development will see increased local demand for accommodation during the construction period comprising temporary bed and breakfast or hotel, or short-term rentals. This is expected to have positive impacts on the local economy through the additional demand for accommodation and the subsequent expenditure in the area from this activity.

20.6.15 It should be acknowledged that whilst the additional demand for accommodation and economic boost to the economy as a result of workers relocating to work on the Proposed Development, there may also be an element of adverse effect. There is an impact of increased rent costs (and accommodation) which can impact the local population who rely on the local rental market.

20.6.16 The magnitude has been assessed as medium because of the high amount of leakage anticipated from construction work at the Proposed Development,

The sensitivity has been assessed as low because the area's pool of temporary accommodation has capacity, as seen with the north-east England's 76% bed space usage in November 2019, which is less than the England rate of 79%[2], though there is likely to be a reasonable in-flow of construction workers to the project. This pool of accommodation will likely benefit from the medium-term increase in usage. However, there are negative impacts on the increased cost of temporary and rental accommodation on the existing local population is also acknowledged and could outweigh with the positive benefit. Considering the positives and negatives, it is anticipated that this will result in an overall minor adverse (non-significant) effect.

Demographic Effects / Community Disruption

20.6.17 It is acknowledged a development of this scale may attract construction workers from across the UK in addition to the existing local construction workforce. While in-migration to the local and wider areas of influence for employment opportunities is expected, principally for the highly skilled or niche construction or supervisory roles, the scale of this is not anticipated to significantly affect the demographic characteristics of the local or wider areas. No significant difference from baseline conditions is expected in relation to local services, such as schools or health, during the construction phase, and therefore no additional provision of local services or infrastructure is required. A minor adverse (non-significant) adverse impact is anticipated.

Business Impacts

20.6.18 The PCC will not directly impact any businesses due to being currently unoccupied. The proposed Site boundary takes into account the connections to and from the PCC, and does interact with some businesses.

Electrical Connection Corridor

20.6.19 The proposed Electrical Connection Corridor is located at the south-east end of the PCC. Multiple businesses fall into the corridor including Rosedene Cattery on Crow Lane, businesses on the Teesport Estate (notably BOC on Tees Dock Road, and Kemira at Teesport Works). There are no proposed changes to the shape or size of the existing electrical connection corridor. There are no proposals to undertake wholesale demolition in the connections corridors. The corridors have been chosen to avoid this eventuality. This will limit any long-term effects on businesses within the corridors and will just result in short-term disruption whilst construction takes place in close proximity to their locations.

CO_2 Gathering Network

20.6.20 There are multiple businesses located within the proposed CO_2 Gathering Network Corridor. These include businesses on the Teesport Estate (notably BOC on Tees Dock Road, Kemira at Teesport Works). The extent of the corridor on the Stockton-on-Tees side of the River Tees passes through mainly disused industrial space. The route does pass through a limited amount of businesses including the Wood Group at Cats Terminal. There are no proposals to undertake wholesale demolition in the connections corridors.

[2] England Occupancy Survey - Visit Britain, November 2019

These have been chosen to avoid this eventuality and should not require demolition of existing structures, limiting any effect on businesses within the proposed Site boundary.

CO_2 Export Pipeline

20.6.21 The CO_2 Export Pipeline is located to the north of the proposed PCC. There are no businesses located within the proposed corridor, therefore, this will not have any direct effects during the construction phase.

Water Abstraction and Discharge Corridor

20.6.22 The water abstraction and discharge corridor is located to the north and north-west of the PCC. This does not directly interact with any operational businesses, being based on the currently disused steelworks site and across the South Gare and Coatham Dunes. This is not anticipated to directly impact any businesses. The corridor does cross a private access road to access businesses on South Gare breakwater, but this is considered as part of the 'Tourism impacts' section below.

20.6.23 To summarise the assessment of business impacts, it is determined that as the site will be provided in a cleared state before the development proceeds and the use of the impact is likely to be minor adverse (non-significant) impact. This is due to a medium sensitivity and low impact magnitude.

Tourism Impacts (Including Local Amenities)

20.6.24 The construction of the Proposed Development could lead to an impact on local tourism amenities, and wider locally-used amenities.

20.6.25 A popular tourism destination in the area is Redcar Beach Caravan Park. This is over 1 km from the PCC. Due to this distance there are no impacts are anticipated for this receptor. Cleveland Golf Links, a local golf course in direct proximity to the Site but does not come into direct contact with the development's proposed Site boundary so is not anticipated to be impacted. Any noise impact on receptors are covered in Chapter 11: Noise and Vibration (PEI Report, Volume I).

20.6.26 The CO_2 Export Pipeline (located to the north-east of the Site), and the proposed water abstraction and discharge corridor pass under a key access route to South Gare breakwater. This may be subject to temporary closure or diversions during the construction period. Any temporary diversions to this access route would impact the access to the tourism amenities close to the breakwater.

20.6.27 Users of the South Gare and Coatham Dunes may be also temporarily impacted by the construction impact of the Proposed Development if open cut construction techniques are used. The area, which is a SSSI, Ramsar site and SPA falls with the proposed area for water abstraction and discharge corridor.

20.6.28 Construction of this may require short-term temporary closures of the beach. However, any closures would be implemented to maintain as much access as possible for users of these amenities due to their importance to local tourism.

20.6.29 The sensitivity of the receptor is anticipated to be low due to the comparable proportion of employment in tourism related industries (food and accommodation) in the direct impact area compared to the England level. There are no tourism-related businesses within the Site boundary. The magnitude of the impact is anticipated to be medium due to the limited anticipated restrictions to access the resources. This results in a minor (non-significant) adverse impact on tourism and wider amenities during the construction phase of the Proposed Development.

Marine Users

20.6.30 There are multiple marine-related receptors in proximity to the Site that could be impacted during the construction phase. The primary cause of any impacts is the water abstraction and discharge corridor that extends into the North Sea. This has the potential to affect marine users that would usually operate in this area, and temporarily restrict areas to the South Gare breakwater.

20.6.31 Commercial fishing effort within the Tees Bay and surrounding area could be temporarily disrupted due to construction works and supporting vessels. Local fishing effort is primarily focused on lobsters (Nephrops), whiting and crabs caught mostly within 10 m and under vessels with pots/traps and demersal trawl/seine nets. Chapter 14: Marine Ecology and Nature Conservation (PEI Report, Volume I) considers this in further detail.

20.6.32 Whilst there is some potential for disruption, works would be short in duration and spatially limited to small areas within the water corridor. In addition, the wider areas around the ICES rectangle and elsewhere provide extensive alternative fishing grounds, were any displacement to occur. To help mitigate against any remaining residual risk, the Marine Licence required for works would likely include a range of conditions to help minimise any disruption. As a result, a minor adverse (non-significant) effect is anticipated.

20.6.33 EDF Energy Renewables own and operate the Teesside Offshore Windfarm; the generation assets for the site (i.e. the turbines themselves) are 130 m from the edge of the water connection corridor for the Site. The transmission assets (i.e. the High Voltage export cable) directly overlaps with the marine segment of the CO_2 Export Pipeline. The windfarm is in the Operation and Maintenance (‘O&M’) phase and the primary traffic in and around the windfarm boundary are small access and maintenance craft associated with O&M operations. There is a risk that O&M access vessels would experience some disruption during the completion of construction works within the water connection corridors and specifically, the discharge route. This is most likely to occur during the potential use of a jack-up barge toward the northernmost tip of the corridor for the emplacement of a replacement discharge head (if needed). There is also the risk of damage to cable assets through construction works taking place alongside existing high voltage assets.

20.6.34 Whilst there is a potential risk of disruption, works would be short in duration and located outside of the windfarm boundary itself. Works would also be undertaken outside of the main vessel access route for the windfarm (from the EDF operational base in Hartlepool, O&M vessels typically reach the windfarm from the north-west as opposed to the south-west or south-east) In

terms of risk to transmission assets, engagement with EDF is ongoing to define the exact positions of cables so that they can be appropriately avoided. As noted above, Marine Licence conditions would also help to mitigate against any remaining risk. As a result, a minor adverse (non-significant) effect is anticipated.

20.6.35 PD Ports own and operate Teesport and act as the statutory harbour authority. There is a potential risk of disruption to vessels using the harbour facility resulting from construction works and associated vessel activity at the intake site. This is most likely to occur during the delivery of any preparatory dredging campaign(s) at the intake site and during the installation and removal of a cofferdam, if required. Whilst there is a risk of some disruption, works are limited to a small working area within the water connection corridor which itself extends less than 200 m into the River Tees. In addition, works would be short in duration and subject to the Marine Licence conditions referenced above to help ensure that other marine users are aware of them. On this basis, a minor adverse (non-significant) effect is anticipated.

20.6.36 As noted in paragraph 20.4.18, the highest areas of vessel density are within the River Tees, the Estuary mouth or the approaches directly to the north/north-east. On this basis, it is highly unlikely for there to be any disruption at the discharge location and a minor adverse (non-significant) effect is anticipated.

20.6.37 The recreational fishing that takes place at South Gare could be temporarily be impacted during the construction phase of the Proposed Development. The local Fishing club, South Gare Fisherman's Association, operates on South Gare breakwater. Access to the breakwater is from a private road off Tod Point Road, in Warrenby. There may be temporary diversions or realignment of the road during construction, specifically for the CO_2 Export Pipeline. This may restrict some access to the breakwater and mean that fishing cannot take place temporarily there. Any restriction to the access road and breakwater would be anticipated to only be for a short period of time.

20.6.38 Local dive club "Redscar[3] Divers" may be temporarily impacted by the construction of the Proposed Development. The diving group operates around the north-east coast of England from their Redcar base. The area of the North Sea and north-east coast that may be affected by the water abstraction and discharge corridor is small. Only a limited amount of the water abstraction and discharge corridor covers the North Sea, so any temporary diving restrictions are anticipated to be negligible.

20.6.39 South Gare Marine Club, an affiliated club of the Royal Yachting Association, is located on the South Gare breakwater. Users of this resource may experience some limited impacts from the construction of the Proposed Development. The extent of this is anticipated to be temporary disruption to users' yachting routes through the water abstraction corridor.

[3] The diving club is known as Redscar Divers, rather than being a misspelling of 'Redcar'.

20.6.40 Paddy's Hole Harbour is located on the north of the PCC. Though there is the potential for temporary diversion on the access road to the harbour, usage of the harbour is not anticipated to be affected.

20.6.41 The sensitivity of the marine receptors is anticipated to be low due to the ability to conduct marine-focused activity in other areas away from areas disrupted during construction. The impact magnitude is anticipated to be medium due to the limited disruption marine resource users are anticipated to experience, but there are marine resources in close proximity to the Site. As a result, a minor adverse (non-significant) impact is anticipated.

20.6.42 Engagement with the MMO, EDF Energy Renewables and PD Ports is ongoing to ensure that marine navigational effects are appropriately considered. Engagement with other navigational stakeholders, Maritime and Coastguard Agency (MCA) and Trinity House (TH), took place at the start of 2020.

Public Rights of Way (PRoW)

20.6.43 There are multiple PRoW in proximity to the Site, with some falling in the proposed Site boundary. These are illustrated in Figure 3-5, Public Rights of Way (PEI Report, Volume II). Some of these PRoW may require temporary diversions during the construction phase.

20.6.44 The PCC is in proximity to bridleways 116 33/1, 116 36/1, and 116 32/1 to the east of the PCC and the Teesdale Way runs along the northern boundary. To the south of the PCC is footpath 116 31/2. These PRoW are not anticipated to interact with the development at the PCC.

20.6.45 Within 500 m of the Site includes bridleways in and around Lazenby Bank, the England Coast Path and various footpaths in and around Yearby Wood, Lazenby Bank and Leckenby A number of PRoW are located within the gas and electrical connection corridors including Bridleways 116/10, 102/194 (Grangetown to Lackenby) and 116/9 as well as footpaths 102/193 (Lackenby to Lazenby), 116 31, 102/2 and 102/2A.

20.6.46 PRoW may be temporarily disrupted during construction. There are no PRoW crossing or adjacent to the PCC therefore development of the generating station and capture plant (and other on-site infrastructure) will have no impact on PRoW. However, the PRoW located within the gas and electrical connection corridors may be temporarily affected if any temporary diversion or closures are put in place. Walkers accessing PRoW close to the Site, could experience some disruption during the period when works are being undertaken under the PRoW to install the pipelines, but any disruption is anticipated to be temporary.

20.6.47 The sensitivity of the PRoW is anticipated to be low and the magnitude is anticipated to be low. This results in a negligible adverse (non-significant) impact.

Skills and Employment

20.6.48 Due to the size of the Proposed Development, and the minimum number of approximately 1,760 construction jobs created per annum for the single train option, it is anticipated that there could be skills and employment

programmes provided by the developer. This could include employment support programmes to help local residents and unemployed workers into roles at the development. This could lead on to training for roles at the Proposed Development.

20.6.49 The sensitivity of the skills and employment enhancement is anticipated to be low, and the magnitude is anticipated to be Medium. This is anticipated to have a minor beneficial (non-significant) impact during the construction phase.

Cumulative Effect During Construction

20.6.50 Detailed assessments of impacts on landscape and visual amenity, noise, and construction dusts during construction of the proposed Development have been undertaken as part of the PEI process and are reported in the relevant chapters (Chapter 8: Air Quality, Chapter 11: Noise and Vibration; and Chapter 17: Landscape and Visual Amenity, PEI Report, Volume I).

Effects During Operation Phase

Employment

20.6.51 The Proposed Development will also generate long-term jobs once operational. The following analysis estimates gross operational employment arising from the Proposed Development and then takes into account deadweight (existing employment on site), leakage, displacement and multiplier effects (to assess indirect and induced employment) in order to assess net impacts in the wider impact area and beyond.

20.6.52 During operational period of the power and capture elements of the scheme (expected to be 25 years with the potential for an operational life of up to 40 years for the CO_2 Gathering Network, Compressor Station and CO_2 Export Pipeline), employment would be generated in operative, management and maintenance roles at the Proposed Development. Figures provided by Vivid Economics suggest there will be approximately 100[4] (FTE) gross direct jobs per annum during the Operation and Maintenance phase (Appendix 20A, PEI Report, Volume II).

20.6.53 The PCC is currently unoccupied and as such there is no existing employment and therefore no deadweight is applied.

20.6.54 Leakage has been assumed to be low, as suggested by Vivid Economics' Economic Benefit Report (Appendix 20A, PEI Report, Volume II), which states that the local skills gap could be lower "*given the existing slack in the chemical and process labour market and the announced and potential closures of power and industrial facilities in the region*". Therefore a leakage figure of 13% has been used for operation state (the leakage of jobs in Middlesbrough and Stockton-on-Tees TTWA to outside residents), displacement of 25% (the 'low' ready reckoner by the HCA) and a composite multiplier of 1.5, it is estimated that the total net employment for the Proposed Development is up to 130 employees. Of these, 110 are

anticipated to be from the TTWA, and 20 outside the TTWA, as presented in Table 20-7.

Table 20-7: Net employment of the Proposed Development in Operation[5]

	Middlesbrough and Stockton TTWA	Outside of Middlesbrough and Stockton TTWA	Total
Gross direct employment	**90**	**10**	**100**
Displacement	20	0	20
Net direct employment	70	10	80
Net indirect/induced employment	40	10	50
Total net employment	**110**	**20**	**130**

Source: AECOM calculations based on development information and assumptions (2020)

20.6.55 The magnitude of impact is considered to be medium during the operational phase due to the beneficial impact of this job creation for the local area. The sensitivity is assessed as low, therefore, the direct, indirect and induced employment created by the operational phase of the Proposed Development is likely to have a minor beneficial long-term (non-significant) impact.

Wider Effects During the Operation Phase

Community Disruption and Demographic Change

20.6.56 Some in-migration for employment opportunities (estimated as 13% leakage of jobs from the TTWA) is expected for the operation of the power station, mainly for the highly skilled and/or niche operational roles or supervisory roles. However, the scale of operational employment is not anticipated to be sufficient to affect the demographic characteristics of the local or wider areas of influence, due to the anticipated low amount of in-migration for operational roles.

20.6.57 No perceptible difference from baseline conditions is therefore expected in relation to demand for housing, accommodation, local services, amenity or community disruption. No additional provision of local services or infrastructure is therefore required. This is assessed as a minor adverse (non-significant) effect.

Effects During Decommissioning

20.6.58 The Power and Capture elements of the Proposed Development are expected to operate for 25 years. At the end of its operating life, the most likely scenario is that the Proposed Development would be shut down and all above ground structures removed from the Site.

20.6.59 There is limited information available at this stage regarding decommissioning methods and timescales. As a worst case scenario, this would result in similar impacts as the construction phase.

[5] Order of magnitude of 1 has been used to round the employment figures.

20.6.60 At the end of its design life it is expected that these elements of the Proposed Development may have some residual life remaining and the operational life may be extended. The design life of the CO_2 Gathering Network, the HP Compressor Station and the CO_2 Export Pipeline is anticipated to be longer as they could operate independently of the power and capture elements of the Proposed Development.

20.6.61 The people employed to decommission the Proposed Development would have an effect on the economy by spending their wages in the same way that those employed in the other stages. Overall the decommissioning phase of the Proposed Development will have a minor (non-significant) beneficial effect on employment in the local area.

20.7 Mitigation and Enhancement Measures

20.7.1 No significant adverse effects are predicted during the construction, maintenance, operation and decommissioning of the Proposed Development, and as such no specific mitigation is required.

20.7.2 No other additional mitigation measures, over and above that stated in the other technical chapters of this PEI Report, are required to avoid or minimise the socio-economic effects identified in this chapter.

20.7.3 Due to the size and nature of the Proposed Development, it is anticipated that skills and education programmes and events will be provided by the contractor as mitigation.

20.7.4 Other possible mitigation could be considered to benefit local residents. A mechanism for managing stakeholders' questions, concerns, and grievances and provide appropriate conflict resolution processes could be considered to ensure any issues are heard by the developer.

20.8 Limitations

20.8.1 The socio-economic assessment is based on the available data at the time of writing and has been based on a desk-based study with no site visits undertaken. The need for site surveys will be considered for the ES, but it is expected the assessment will be largely desk-based.

20.9 Residual Effects or Conclusions

20.9.1 It is considered that the Proposed Development will have an overall positive economic effect on the Middlesbrough and Stockton TTWA economy, through the provision of employment and through associated multiplier effects.

20.9.2 The residual effects associated with the Proposed Development during the construction and operational stages are summarised in Table 20-8.

Table 20-8: Socio-economic Predicted Residual Effects

Construction Phase

Effect	Classification	Explanation
Construction employment	Major beneficial effect (significant)	High sensitivity, high magnitude
Temporary worker accommodation	Minor adverse effect (non-significant)	Medium sensitivity, low magnitude
Community disruption/demographic change	Minor adverse effect (non-significant)	Medium sensitivity, low magnitude
Impact on businesses	Minor adverse effect (non-significant)	Medium sensitivity, low magnitude
Tourism impact (including. amenity)	Minor adverse effect (non-significant)	Low sensitivity, medium magnitude
Marine	Minor adverse effect (non-significant)	Low sensitivity, medium magnitude
Disruption to PRoW users	Negligible adverse effect (non-significant)	Low sensitivity, low magnitude
Skills and employment enhancement	Minor beneficial effect (non-significant)	Medium sensitivity, low magnitude

Operation Phase

Effect	Classification	Explanation
Operation employment	Moderate beneficial effect (significant)	Medium sensitivity, medium magnitude
Community disruption/demographic change	Negligible adverse effect (non-significant)	Limited migration to the area for operational roles is expected.

Likely Significant Effects

20.9.3 The significant effects will include the creation of jobs during the construction phase. This results in a positive benefit for both the TTWA and outside the TTWA.

20.9.4 The significant effects will include the creation of jobs during the operation phase, resulting in a positive benefit for both the TTWA and outside the TTWA.

20.10 References

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