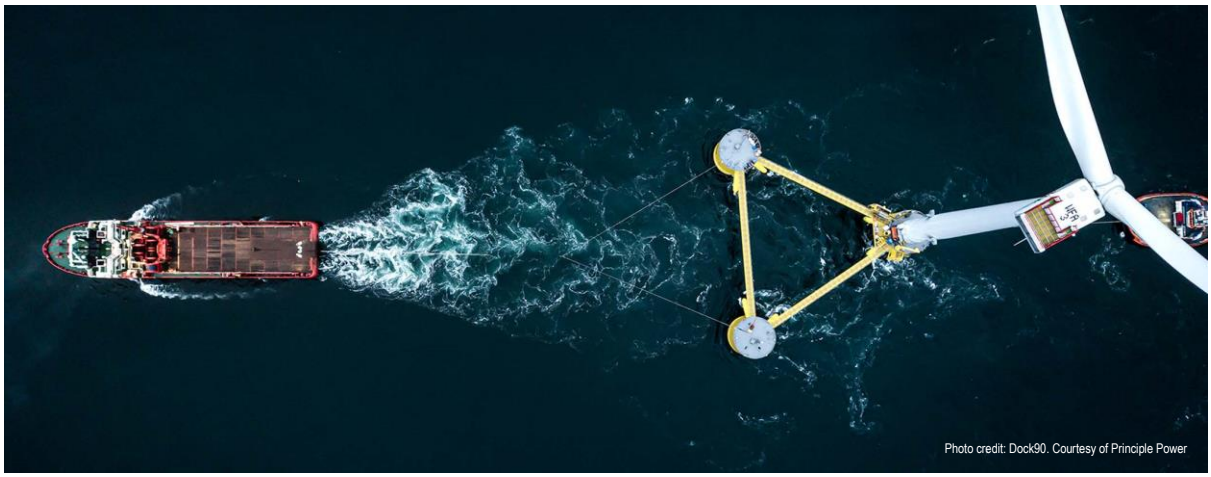

Project Erebus Environmental Statement Chapter 27: Socio-Economics, Tourism and Recreation

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Acronyms

Term	Definition
B&B	Bed and Breakfast
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CEA	Cumulative Effects Assessment
DEPEX	Decommissioning expenses
EMF	Electromagnetic field
EU	European Union
GVA	Gross Value Added
HDD	Horizontal Directional Drill
HGV	Heavy Goods Vehicle
HIA	Health Impact Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEMA	Institute of Environmental Management and Assessment
IMD	Index of Multiple Deprivation
LDP	Local Development Plan
LLSOA	Lower Layer Super Output Areas
MCAA	Marine and Coastal Access Act
MHPA	Milford Haven Port Authority
nm	Nautical Mile
NPS	National Policy Statement
NRPB	National Radiological Protection Board
NRA	Navigational Risk Assessment
NVQ	National Vocational Qualification
O&M	Operation and Maintenance
ONS	Office of National Statistics

Term	Definition
OPEX	Operational expenses
PDE	Project Design Envelope
PHE	Public Health England
PPW	Planning Policy Wales
PRoW	Public Rights of Way
RYA	Royal Yachting Association
SUP	Stand Up Paddleboarding
TANs	Technical Advice Notes
WAM	Wales Activity Mapping
WAG	Welsh Assembly Government
WCP	Wales Coast Path
WHIASU	Wales Health Impact Assessment Support Unit
WHO	World Health Organization
WNMP	Welsh National Marine Plan

Chapter 27 Socio-Economics, Tourism and Recreation

27.1 Introduction

27.1.1.1 The proposed Project Erebus (the Project) is a demonstration scale Floating Offshore Wind (FLOW) development in the Celtic Sea region. The Applicant, Blue Gem Wind, is a joint venture between Simply Blue Energy (SBE) and TotalEnergies, set up to create a new low carbon offshore energy sector in the region; that contributes to climate change targets, supply chain diversification and energy security.

27.1.1.2 The array area is located approximately 35 km southwest of the Pembrokeshire coastline, covering an area of 43.5 km^2 in water depths of between 65-85 m. The array area is located outside of the 12 nm limit, but all elements of the Project, array area, offshore export cable corridor and landfall, fall within Welsh territorial waters or the Welsh Zone.

27.1.1.3 The Project comprises six to ten Wind Turbine Generators (WTG) with a total generating capacity up to 100 MW. Each WTG is housed on a semi-submersible floating platform with a mooring system comprising a maximum of five catenary mooring lines, up to 870 m in length, and a range of foundation options including drag embedment anchors, driven piles, drilled piles and/or suction piles. Up to 10 dynamic array cables are proposed, with a lazy wave configuration from the semi-submersible floating platform to the seabed. The offshore export cable, up to 49 km in length, links the array area to landfall at West Angle Bay, Pembrokeshire.

27.1.1.4 The Project also comprises an onshore export cable and an onshore substation, located close to the existing Pembroke Power Station.

27.1.1.5 The economic impact assessment has been carried out by FintanGeraghty, WSP who has over 20 years' experience as an economist. This chapter has been authored by WSP and MarineSpace, with input from Ursula Stevenson who has over 20 years' experience in EIA, including health assessment, tourism and recreation and marine projects and support from Rebekah Thompson. Oversight and review has been undertaken by Lara Lawrie, MarineSpace who has over 12 years' experience in infrastructure planning in Pembrokeshire, specialising in terrestrial and marine consenting and environmental impact assessment.

27.1.1.6 This Chapter assesses the likely environmental effects of the Project on the following topics:

- Tourism and Recreation; and
- Socio-economics.

27.1.1.7 This Chapter assesses the potential environmental effects on tourism and recreation and socio-economics. Potential effects on human health arising from the Project are also assessed. The format of the chapter outlines the baseline conditions which currently exist, and any embedded mitigation that has been incorporated into the design of the Project. An impact assessment, based on the project design envelope (PDE) presented in Chapter 4: Proposed Development Description details the potential direct and indirect effects of the Proposed Development on tourism and recreation, socio-economics and human health. Mitigation measures required to prevent, reduce or offset the effects and the residual effects are also detailed in this chapter.

27.1.1.8 Other related chapters of the Environmental Statement (ES) include:

- Chapter 13: Seascape and Visual Impacts
- Chapter 15: Commercial Fisheries;
- Chapter 16: Shipping and Navigation;
- Chapter 18: Coastal and Marine Infrastructure and Other Users;
- Chapter 21: Landscape and Visual Impact;
- Chapter 22: Onshore Noise and Vibration;
- Chapter 24: Land Use;
- Chapter 25: Traffic and Transport; and
- Chapter 26: Air Quality.

27.2 Legislation, Policy and Guidelines

27.2.1 Legislation

Well-being of Future Generations Commissioner for (Wales) Act 2015 (Future Generations Commissioner for Wales, 2015)

27.2.1.1 The Well-being of Future Generations (Wales) Act 2015 is intended to improve the social, economic, environmental and cultural well-being of Wales. The Act places a statutory duty on public bodies in relation to sustainable development, based on seven well-being goals. Amongst these goals is “a prosperous Wales”, which aims to develop an “innovative, productive and low carbon society which recognises the limits of the global environment and, therefore, uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work (Future Generations Commissioner for Wales, 2015).

Health and Well-being Impact Assessment for the Planning (Wales) Bill (2015) (Town & Country Planning Association, with Wales Health Impact Assessment Support Unit and Public Health Wales, 2015)

27.2.1.2 The Bill provisions, will directly contribute to the Welsh Government’s aims and will reflect how the Welsh Government have put sustainable development at the heart of government – specifically: to strengthen the conditions that will enable businesses to create jobs and sustainable economic growth; and contribute to ‘health’ in its broadest sense (as defined by the World Health Organisation) – a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Public Health Wales Act 2017 (Public Health Wales, 2017)

27.2.1.3 Part 6 of the Act places a duty on the Welsh Ministers to make regulations that require public bodies to carry out health impact assessments in specified circumstances (in the Explanatory Memorandum, health impact assessments (HIA) are described as offering ‘a systematic means of taking health into account as part of decision making and planning processes). The Act aims to take a proportionate approach - assessments are limited to policies, plans and programmes which have outcomes of national or major significance, or which have a significant effect at the local level on public health.

27.2.2 Policy

National Policy Statements

27.2.2.1 Although this Project is seeking Section 36 consent under the Electricity Act 1989 and a Marine Licence under the Marine and Coastal Access Act (MCAA) 2009, as opposed to a Development Consent Order (DCO), its size (up to 100 MW) is similar to the minimum threshold (100 MW) for Nationally Significant Infrastructure Projects (NSIPs). As such, guidance relevant to NSIPs is considered relevant to use for this Project. National Policy Statements (NPSs) were developed to provide guidance in the determination of NSIPs. Those relevant for the assessment of impacts on marine water and sediment quality include:

- The overarching National Policy Statement for Energy (NPS EN-1) (Department of Energy and Climate (DECC), 2011a);
- NPS for Renewable Energy Infrastructure (EN-3) (DECC) 2011b); and
- NPS for Electricity Networks Infrastructure (EN-5).

27.2.2.2 Relevant sections of the NPS which have been used to inform this assessment are summarised in Table 27.1. These detail provisions relevant to the chapter, with a focus on socio-economics[1].

Table 27.1 – NPS EN-1 and EN-5 Assessment Provisions Relevant to Socio-Economics

NPS Requirement	NPS Reference	ES Reference
Energy production has the potential to impact on the health and well-being of a population, with access to energy being beneficial to society and our health as a whole, whilst noting the production, distribution and use of energy may have negative impacts on some people's health.	EN-1, Section 4.13.1	Potential impacts to human health and well-being arising from beneficial use of renewable energy have been assessed in Section 27.6.
Where the Project has an effect on human beings, an Environmental Statement (ES) should assess these effects for each element of the Project, identifying any adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate. It is necessary to consider the cumulative impact of more than one development on health.	EN-1, Section 4.13.2	Potential impacts to human beings arising from the Project and Cumulative impacts of the Project have been assessed in Section 27.6. For this assessment these have been scoped as being those that relate to beneficial effects of renewable energy (EN-1 4.13.1 above) and potential effects of EMF (EN-5, 2.1 below).
The construction, operation and decommissioning of energy infrastructure may have socio-	EN-1, Section 5.12.1	Potential socio-economic impacts during the construction, operation and decommission stage of the Project have

[1] A period of consultation on a set of revised energy NPS's, managed by the Department of Business, Energy and Industrial Strategy (BEIS), ended on 29th November 2021.

NPS Requirement	NPS Reference	ES Reference
economic impacts at local and regional level.		been assessed against the receptors in Section 27.6.
Where the Project is likely to have such impacts, these impacts should be assessed and included within the ES.	EN-1, Section 5.12.2	The likely potential impacts caused by the Project have been assessed in Section 27.6.
Socio-economic impacts may include the creation of local jobs and training opportunities; the provision of additional local services and improvement of local infrastructure; effects on tourism; the impact of an influx of workers and cumulative impacts.	EN-1, Section 5.12.3	Potential socio-economic effects and the effects on job creation is assessed in Section 27.6. Potential impacts on tourism is assessed in Section 27.6.
Assessment should describe the socio-economic conditions in the areas surrounding the Project and should also refer to how the development's socio-economic impacts correlate with local planning policies.	EN-1, Section 5.12.4	The socio-economic conditions are outlined within the economic baseline which can be found in Section 27.5.
Socio-economic impacts may be linked to other impacts, for example the visual impact of a development may also have an impact on tourism and local businesses.	EN-1, Section 5.12.5	Potential impacts to visual impacts arising from the Project have been assessed in Chapter 13: Seascape and Visual Impacts and Chapter 22: Landscape and Visual Impact. Potential impacts on the visual impacts and local disruption to tourism and local businesses are assessed in Section 27.6 of this chapter.
The assessment should consider any relevant beneficial provisions the applicant has made or is proposing to make to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise as well as any options for phasing development, in relation to socio-economic impacts.	EN-1, Section 5.12.8	The direct, indirect and induced employment and expenditure created by the temporary construction phase of the Project and the beneficial impacts associated with the Project have been assessed in Section 27.6 in this chapter. Mitigation measures to minimise environmental impacts have been included in Section 27.6 in this chapter.
The [Secretary of State] should consider whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development" and recognises that "for example high quality design can improve the visual and environmental experience for visitors and the local community alike.	EN-1, Section 5.12.9	Mitigation measures to minimise environmental impacts have been included in Section 27.6 in this chapter.

NPS Requirement	NPS Reference	ES Reference
Recognises the risk of Electric and Magnetic Fields (EMFs) and their direct and indirect impacts on human health	EN-5, Section 2.10	The potential operational impacts due to perceived fear of EMFs on Human health has been included in Section 27.6 in this chapter.

Planning Policy Wales (Welsh Government, 2021)

27.2.2.3 Planning Policy Wales notes the importance of sustainable development and the vision for Wales to become economically, socially and environmentally sustainable. The revised Planning Policy Wales (PPW) Edition 11 was published in February 2021. PPW will deliver the vision and spirit set out in the Well-being of Future Generations (Wales) Act 2015. PPW plays a significant contribution to the improvement of well-being in all its aspects as defined by the statutory well-being goals.

"through moving us towards a low carbon, resilient society, of providing secure and well-paid jobs, and of building well-connected environments for everyone in Wales that improves our lives and health and enhances our well-being. It will help prepare for a more diverse population and a greater ageing population, by supporting the integration of services, embedding social cohesion, and ensuring for example that sites of new housing ensure equality, access to the Welsh language, and encourage a sense of belonging" (Welsh Government, 2021).

27.2.2.4 The policies give a clear message that Wales is planning for future resilient urban areas and rural communities, embracing technology and innovation, including smart working, which also anticipates progress to ensure that Wales is at the forefront of planning.

27.2.2.5 The Welsh Government has a set target for Wales to generate 70% of its electricity consumption from renewable energy by 2030.

27.2.2.6 PPW section 5.5.11 refers to tourism and states it is *"vital to economic prosperity and job creation in many parts of Wales"*. PPW also covers Active and Social Places which promote social, economic, environmental and cultural well-being (Section 4), and emphasises that Low carbon electricity must become the main source of energy in Wales (Section 5) (Welsh Government, 2021).

Technical Advice Notes (Welsh Government, 2017)

27.2.2.7 Planning Policy Wales is supplemented by a suite of detailed guidance on specific topics. Technical Advice Notes (TANs) that have relevance for health and well-being and socio-economics include:

- TAN 11: Noise (1997);
- TAN 14: Coastal Planning (1998);
- TAN 16: Sport, recreation and open space (2009);
- TAN 12: Design (2016) and TAN 18: transport (2007); and
- TAN 23: Economic Development (2014).

Future Wales – The National Plan 2040 (Welsh Government, 2020)

27.2.2.8 Future Wales – the National Plan 2040 is the National Development Framework, setting the direction for development in Wales up to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, and improving the health and well-being of our communities. Policies 17 and 18 set out Future Wales' approach to renewable energy generation across Wales, and also highlight that proposals should describe the net benefits the scheme will bring in terms of social, economic, environmental and cultural improvements to local communities, whilst having no adverse impacts on the surrounding environment (Welsh Government, 2020).

27.2.2.9 Haven Waterway including the ports of Milford Haven and Pembroke Dock are identified within the Welsh Government's Strategic Gateways to facilitate international connectivity and connecting Wales to the World (Policy 10). The Welsh Government will support appropriate development which can enhance international connectivity and can be accommodated within statutory climate change targets and carbon budgets (Welsh Government, 2020).

27.2.2.10 Policy 32 – Haven Waterway and Energy states that "*Welsh Government supports operations at Haven Waterway and recognises its location for potential renewable and low carbon energy-related development, innovation and investment. New energy-related development should support local and regional communities and provide jobs and investment in training and skills*" (Welsh Government, 2020).

The Socio-economic Duty: guidance and resources for public bodies (Welsh Government, 2021)

27.2.2.11 The Duty aims to encourage better decision making and ultimately deliver better outcomes for those who are socio-economically disadvantaged. Public Bodies will meet the Duty following a five-stage approach: Planning, Evidence, Assessment and Improvement, Strategic Decision Makers, and Decision Made and Recorded.

Prosperity for All: A Low Carbon Wales (Welsh Government, 2019)

27.2.2.12 This report outlines how Wales will tackle carbon emissions in the period up to 2050. The Prosperity for All report provides the first concrete outline of how to achieve the current 80% carbon reduction target, as well as the interim targets of a 27% reduction by 2020, a 45% reduction by 2030 and a 67% reduction by 2040. The plan emphasises promoting renewable energy developments (wind, solar and other renewables). This Plan sets out the Welsh Government's approach to cut emissions and increase efficiency in a way that maximises wider benefits for Wales, promoting good health and wellbeing for everyone, ensuring a fairer society whilst opening up new economic opportunities and quality jobs for local communities.

Prosperity for All: The National Strategy (Welsh Government, 2017)

27.2.2.13 The long-term aim is to build a Wales that is prosperous and secure, healthy and active, ambitious and learning, and united and connected. The National strategy unites key themes linking objectives with wider initiatives such as: The Programme for Government, Taking Wales Forward 2016-2021 and the legislative goals set out in the Well-being of Future Generations Act 2015. Doing so, the National strategy sets out the commitment to deliver the following Well-being objectives:

- Prosperous and Secure: to drive a Welsh economy which spreads opportunity and tackles inequality, delivering individual and national prosperity. This will allow people to fulfil their ambitions and enhance their wellbeing through secure and sustainable employment;
- Healthy and Active: to improve health and well-being in Wales, for individuals, families and communities; and
- United and Connected: to build a nation where people take pride in their communities, building vital links that facilitate the economy to grow.

Prosperity for All: Economic Action Plan (Welsh Government, 2017)

27.2.2.14 The purpose of this plan is to set out a vision for inclusive growth built on strong foundations and to drive the goals of growing the economy and reducing in equality whilst supporting the national strategy for Wales.

Welcome to Wales: Priorities for the visitor economy 20-25 (Welsh Government, 2017)

27.2.2.15 This document sets out the plan for tourism to drive sustainable growth and for harnessing the visitor economy for wider gain, and the aims on how to get there. This means economic growth that delivers benefits for people and places, including environmental sustainability, social and cultural enrichment and health benefits.

27.2.2.16 The document states that *"More than 9% of the workforce in Wales is now employed in tourism. It is one of the country's fastest growing sectors and benefits many rural areas as the main driver of the economy and source of employment"*.

Marine Policy Statement (HM Government, 2011)

27.2.2.17 The Marine Policy Statement (MPS) adopted by all UK administrations in March 2011 provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made in order to enable sustainable development. The MPS sets out a vision of having *"clean, healthy, safe, productive and biologically diverse oceans and seas"* by supporting the development of Marine Plans. It also sets out the framework for environmental, social and economic considerations that need to be considered in marine planning.

27.2.2.18 The MPS states that authorities and decision makers should consider the potential for tourism and recreation in the marine environment and the benefits that this will bring to the economy and local communities, and in weighing up these considerations it will be important to ensure that local authorities, local tourism stakeholders, tourism destination management organisations, water based sports organisations and other marine and coastal users are engaged and consulted before decisions are taken. Outdoor recreation and enjoyment of the coast can also provide benefits to physical and mental wellbeing, and socio-economic benefits include positive economic benefits through increased visitor numbers and improved access.

Welsh National Marine Plan (Welsh Government, 2019)

27.2.2.19 By adopting the MPS, the Welsh Government committed to the requirement to introduce Marine Plans for Wales. The Welsh Government has developed the first marine plan for Welsh inshore and offshore waters, the Welsh National Marine Plan (WNMP). This Plan was developed in accordance with the Marine and Coastal Access Act (MCAA) 2019, the MPS and the Maritime Spatial Planning Directive, a draft version has been issued for consultation.

27.2.2.20 Objective 5 of the WNMP, *"to recognise the significant value of coastal tourism and recreation to the Welsh Economy and welling and ensure that such activity and potential for future growth are appropriately safe guarded"*.

27.2.2.21 Policy SOC_02: Well-being of coastal communities - recognises that development and use of the marine environment has the potential to affect the socio-economic future of coastal communities and decision makers should ensure that opportunities to contribute positively to the future well-being of coastal communities are taken.

27.2.2.22 It covers policies and commitments on the wider ecosystem, as set out in the MPS including those relating to the Marine Strategy Framework Directive and the Water Framework Directive, and other environmental, social and economic considerations.

27.2.2.23 Energy Low Carbon Sector Objective 1 of the WNMP is to '*contribute significantly to the decarbonisation of the economy and prosperity by increasing the amount of marine renewable energy generated through supporting offshore wind, wave energy and tidal stream energy generation, generating a better understanding of the potential for tidal lagoon power, and recognising the potential role of the marine environment in new coastal nuclear energy generation facilities'*. Object 2 states that it will develop Wales as an exemplar of marine renewable energy by developing the skill base, infrastructure and technical knowledge to support the industry over the next 20 years.

27.2.3 Local Policy

Pembrokeshire Local Development Plan 2013-2021 (Pembrokeshire County Council, 2013)

27.2.3.1 The Pembrokeshire Local Development Plan (LDP) was adopted 28 February 2013. It sets out the Council's policies for the development and use of land within the County (excluding the area of the Pembrokeshire Coast National Park) until 2021 and is currently under review. Of relevance to this chapter is:

- *Policy GN 34 Protection and Creation of Outdoor Recreation Areas*: Outdoor recreation areas, which include public open spaces, leisure routes and recreational facilities, are protected; and
- *Policy GN 35 Protection of Open Spaces with Amenity Value*: Development which would adversely affect the appearance, character or local amenity value of areas of public and private open space will not normally be permitted. In exceptional circumstances, where the proposal will bring clear social and/or economic benefits to the local community and make a positive contribution to the built environment, development may be permitted where it can be demonstrated that no suitable alternative site is available.

Pembrokeshire Recovery and Regeneration Strategy 2020-2030 Pembrokeshire Council, 2020)

27.2.3.2 The Pembrokeshire Recovery and Regeneration Strategy combines the economic restart and recovery plans in response to the Covid 19 pandemic with a longer term renewal and regeneration approach. Pembroke Dock Marine is a priority project, which is a collaborative project bringing together four partners to establish a centre for the development of marine energy in Pembrokeshire to unlock the significant potential of floating wind in the Celtic Sea. Investments which have already been made in floating offshore wind by Blue Gem Wind Energy.

Pembrokeshire Coast National Park Local Development Plan 2 (September 2020-2031) (Pembrokeshire Coast National Park Authority, 2020)

27.2.3.3 Pembrokeshire Coast National Park recognises the importance of tourism and the visitor economy throughout its LDP. The Plan includes the long-term vision for the Pembrokeshire Coast National Park and the objectives and land use policies needed to deliver that vision. With key objectives which include: To attract a sustainable number of people at all times of the year to enjoy the special qualities of the National Park (Policy 38) and help to create and maintain a diverse, viable and sustainable local economy benefiting all sections of the community (Policy 43, Policy 44 and Policy 45).

27.2.4 Guidance

27.2.4.1 There is no specific guidance on socio-economic assessment and EIA. However, the methodology used in the assessment, Section 27.4 is generally accepted as industry good practice and has been employed in a number of other infrastructure development projects throughout the UK, including energy generation, transmission, and distribution projects.

27.2.4.2 There is also no established guidance on the assessment of human health as part of an EIA, current best practise has been developed from the following documents:

- Health Impact Assessment, A Practical Guide (Public Health Wales, 2007). This document guide, produced by the Wales Health Impact Assessment Support Unit (WHIASU) describes the process, provides methods and lists resources to support Health Impact Assessment (HIA);
- Planning for Better Health and Wellbeing in Wales (Town & Country Planning Association, with Wales Health Impact Assessment Support Unit and Public Health Wales, 2016). The Town and Country Planning Association (TCPA), the Wales Health Impact Assessment Support Unit (WHIASU) and Public Health Wales have collaborated to develop this briefing as a practical guide, in addition to setting out policy and legislative requirements for planning for health within the current planning and public health systems; and
- Health in Environmental Impact Assessment: A Primer for a Proportionate Approach (Cave, B. et al, 2017). This document offers recommendations for public health teams, EIA practitioners, planning officers, consultees, consenting authorities, and other concerned with population and human health.

27.3 Consultation and Scoping

27.3.1.1 An EIA Scoping Report (Marine Space, 2019) was produced and submitted to Natural Resources Wales (NRW), who consulted with the statutory bodies and key stakeholders. No comments on Tourism and Recreation, Socio-economics and Human Health were included in NRW's formal EIA Scoping Opinion (received January 2020), other than NRW highlighting that the ES should include an assessment of impacts as set out in the EIA Scoping Report as shown in Table 27.2. Copies of the Scoping Opinion Request (the Scoping Report) and NRW's Scoping Opinion are provided in Volume 3, Technical Appendices 2.1 and 2.2, respectively.

27.3.1.2 A meeting was held with Pembrokeshire Coastal Forum (PCF) in January 2021 to identify key local tourism and recreation stakeholders to engage with and inform the impact assessment. Following input from PCF a series of meetings were arranged in May 2021 with key tourism and recreation stakeholders located on, or close to the Angle Peninsula, details are provided in Table 27.2.

27.3.1.3 The objectives of the tourism and recreation consultation were to provide an introduction to the Project, present details of potential impacts during construction, operation and maintenance, and decommissioning and provide an opportunity for local stakeholders to raise any concerns about impacts to the operation of their business.

27.3.1.4 Feedback from these meetings was used to inform the impact assessments presented in this Section 27.6 of this chapter.

27.3.1.5 Furthermore, the Project has established supply chains with local, national and international companies who have provided feedback which has informed this chapter. The Applicant has been working with Welsh and UK Government to highlight opportunities and barriers to maximising local supply chain content throughout the development phase of the Project. Collaboration with other development agencies including, but not limited to, Marine Energy Wales, Celtic Sea Supply Chain Cluster, Celtic Sea Developers Alliance, Pembrokeshire County Council. Pembrokeshire College, Swansea Bay and Cardiff City Region Deals has been and continues to play a key role in supply chain and skills development for the region. Details of the supply chain database are published on the Applicants website, including details of where contracts have been awarded to date and under which phase of the Project. A summary of phases and examples of the supply chain are provided below.

- Site Selection – contracts awarded to Intertek, MarineSpace, James Fisher Marine Services, EDS, Burges Salmon;
- Consenting – contracts awarded to OWC, ITPEnergised, MarineSpace, Nash Maritime, ABPMer, MSDS Marine, Dyfed Archaeology, Jon Hudson Ecology, Turley Associates, OPEN (Optimised Environments), SMRU, MSDS Marine, Invicta, The Message, WSP, 3DW and PCF;
- Project Design – contracts awarded to Principle Power Inc, Wave Venture, RCG, Partrac, Blue Fin Designs, Percolated Design, Rovco, EOLOS, Steel River Consultants and Solar Wheel;
- EPC (2024-2026);
- Installation and Commissioning (2026-2027);
- Generation (2026-2027);
- Operations and Maintenance (2027-2052); and
- Decommissioning (2052).

Table 27.2 – Summary of Consultation Responses Relating to Tourism and Recreation, Socio-economics and Human Health

Consultee	Response	Applicant Action
Natural Resources Wales (Scoping Opinion) January 2020	No comments were received from consultees in relation to Tourism and Recreation, Socio-economics, and Human Health. The ES should however include an assessment of impacts on these topics as set out in the scoping report.	Assessment of impacts on tourism and recreation and socio-economics and human health has been undertaken as set out in the EIA Scoping Report.
Pembrokeshire Coastal Forum January 2021	Identification of key tourism and recreation stakeholders within the Study Area.	Arranged meetings with stakeholders listed below.

Consultee	Response	Applicant Action
West Angle Bay Caravan Park, Angle April 2021	Main concern was centred around the temporary impacts associated with site traffic, noise disruption, dust, coming to and from site and its effect on the caravan park, and the impacts on the properties adjacent to the Caravan Park which are lived in all year round.	Impacts associated with noise, visual impacts and traffic are considered in Chapter 21: Landscape and Visual Impact; Chapters 22: Onshore Noise and Vibration; Chapter 25: Traffic and Transport; and Chapter 26: Air Quality. General disruption by the construction activities and the potential impacts on businesses are covered in Section 27.6.
Café Mor, Freshwater West and Angle Point House, Angle April, 2021	Minor concerns surrounding the impacts on seaweed harvesting in West Angle Bay as the area is good for certain species of Kelp and the duration of construction impacts on seaweed harvesting.	Impacts associated with this are considered in Chapter 9: Marine and Coastal Ecology and Chapter 20: Terrestrial and Coastal Ecology.
Café at West Angle Bay (Wavecrest Café), Angle April 2021	Concerns surrounding the direct impacts to the operation of the Café which may result in financial loss due to visual, noise and air quality impacts during the construction phase. Disruption and reduced access to the business during the maintenance phase.	Impacts associated with noise, visual impacts and traffic are considered in Chapter 21: Landscape and Visual Impact; Chapters 22: Onshore Noise and Vibration; Chapter 25: Traffic and Transport; and Chapter 26: Air Quality. General disruption by the construction activities and the potential impacts on businesses are covered in Section 27.6.
Atlantic Edge Oysters, Angle Bay April 2021	Concerns surrounding sediment plumes and pollution entering Angle Bay and impacting the Oyster beds.	Although Angle Bay was considered as a landfall option it was screened out. This is discussed further in Chapter 3: Site selection and Alternatives. Impacts related to sedimentation have been addressed in Chapter 6: Marine and Coastal Processes.
Pembrokeshire Surf Club and Outer Reef Surf School, Freshwater West April 2021	Surfers concerned about the impacts on waves, tidal regime and surf amenity at local beaches.	Impacts related to waves, tidal regime and surf amenity are addressed in Chapter 6: Marine and Coastal Processes and Section 27.6
Celtic Deep Tours April 2021	Concerns regarding the construction and operation impacts on wildlife behaviour, in particular the wildlife's sensitivity to EMF. Concerns about marketing the 'Wildness' of the Celtic Deep to tourists, due to the addition of the array area.	Impacts related to construction and O&M on marine ecology and EMF are assessed in Chapter 9: Marine and Coastal Ecology; Chapter: 12: Marine Mammals; and Volume 3, Technical Appendix 7.2: EMF Assessment. Consideration

Consultee	Response	Applicant Action
		has also been given under Section 27.6 of this chapter.
Broadside Boat Charters April 2021	Concerns regarding the potential navigational issues due to increase in shipping traffic re-routing to avoid array area and the No Go area around the array site (particularly with larger commercial and energy vessels) during construction and operation.	Impacts related to shipping and navigation have been considered in Chapter 16: Shipping and Navigation.
	Concerns of the construction impacts and increased vessel traffic on wildlife, shark species in particular, driving them away from the area.	Impacts related to construction and O&M on marine ecology are assessed in Chapter 9: Marine and Coastal Ecology; Chapter 10: Fish and Shellfish Ecology; Chapter: 12: Marine Mammals; and Chapter 15: Commercial Fisheries. Consideration has also been given under Section 27.6 of this chapter.
	Concerns surrounding the cumulative effects with Project Valorous within the South west.	Impacts relating to cumulative effects have been considered in Section 27.6 and Chapter 30: Cumulative Effects Assessment.
Celtic Charter April, 2021	Concerns regarding the potential navigational issues due to increase in shipping traffic re-routing to avoid array area and the No Go area around the array site (particularly with larger commercial and energy vessels) during construction and operation.	Impacts related to shipping and navigation have been considered in Chapter 16: Shipping and Navigation.
	Concerns surrounding operational noise impacts from the onshore substation on residential receptors.	Impacts associated with noise during the construction and O&M phase are considered in Chapters 22: Onshore Noise and Vibration.
Celtic Charter April, 2021 (Cont'd)	Concerns of the construction impacts and increased vessel traffic on wildlife, shark species in particular, and driving them away from the area.	Impacts related to construction and O&M on marine ecology are assessed in Chapter 9: Marine and Coastal Ecology; Chapter 10: Fish and Shellfish Ecology; Chapter: 12: Marine Mammals; and Chapter 15: Commercial Fisheries. Consideration has also been given under Section 27.6 of this chapter.
Royal Yacht Association April, 2021	Concerns surrounding the potential for there to be more activity concentrated in the	Impacts related to shipping and navigation have been assessed in Chapter 16:

Consultee	Response	Applicant Action
	shore area due to No Go areas and increased users due to the raise in the 'Staycation' Market.	Shipping and Navigation and considered in Section 27.6 of this chapter.
National Trust August, 2021	Concerns about the lack of strategic oversight of potential construction projects and the impact to the tourism economy.	Impacts related to tourism have been considered in Section 27.6.

27.4 Assessment Methodology and Significance Criteria

27.4.1.1 The impacts associated with the Project have been assessed for three phases of the Project:

- Construction;
- Operation (and maintenance); and
- Decommissioning

27.4.1.2 Potential impacts identified through Scoping and following consultation with key stakeholders for the main project stages (construction, operation and maintenance, and decommissioning) comprise:

- Tourism and Recreation:
  - Disruption to recreational vessel activity and Chartered Boat Tours (all project stages – construction, operation and maintenance and decommissioning);
  - Disruption/reduced access for coastal recreational users (construction & decommissioning);
  - Disruption/reduced access for coastal tourism (construction & decommissioning);
  - Disruption/reduced access for terrestrial recreational users (construction & decommissioning); and
  - Disruption/reduced access to local businesses (all project stages – construction, operation and maintenance and decommissioning).
- Socio-economics:
  - Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities (all project stages - construction, operation and maintenance and decommissioning);
  - Increase in professional roles and training opportunities (all project stages - construction, operation and maintenance and decommissioning);
  - Gross Value Added (GVA) impacts including increased productivity, increased revenue opportunities and economic benefit, reducing Welsh Index of Multiple Deprivation (all project stages - construction, operation and maintenance and decommissioning);
  - Creation of cluster effects (all project stages - construction, operation and maintenance and decommissioning); and
  - Use of green energy (operation), and energy security (operation).

- Human Health:
  - Health effects from direct economic benefits/employment (construction);
  - Electromagnetic fields impact (operation); and
  - Well-being of Future Generations Goals associated with green energy (operation).

27.4.2 Study Area

27.4.2.1 Study areas have been defined for each of the topics covered in this chapter and vary depending on the extent of the potential impact. For example, impacts on tourism, recreation and health effects occur principally in close proximity to the Project, but socio-economic and health benefits will also be felt at a national level.

Tourism and Recreation

27.4.2.2 The proposed Study Area for assessing tourism and recreational impacts will cover an offshore Study Area aligned to that specified for shipping and navigation. The proposed Study Area comprises a 10 km buffer around the array area and offshore export cable corridor (see Volume 2, Figure 6.1).

27.4.2.3 An onshore Study Area comprising the Pembrokeshire coastline 5 km from the landfall, onshore export cable corridor and substation location.

Socio-Economics

27.4.2.4 The Study Area for assessing potential socio-economic impacts will cover several geographic scales:

- Local (Pembrokeshire);
- Regional (South west Wales consisting of Pembrokeshire, Carmarthenshire and Ceredigion); and
- National (Wales).

27.4.2.5 For establishing the baseline, it was important to compare Pembrokeshire against other areas in close proximity. Pembrokeshire is the lowest geographic level where data is commonly available for different indicators such as population, economic activity and unemployment. There are likely to be wider benefits to the UK but for the purposes of the assessment these are likely to be most significant for Wales.

Health

27.4.2.6 The Study Area for assessing potential health impacts will reflect the onshore cable corridor and onshore substation, and otherwise refer to the socio-economic Study Area.

27.4.3 Desk Study

27.4.3.1 The baseline data for this assessment has been gathered through a desk-based research exercise within the Study Areas described in Section 27.5. Key data sources include:

- Local Authority Mapping (Pembrokeshire County Council, 2021);
- Office for National Statistics ('ONS') and ONS Mapping (ONS, 2021);
- Satellite Imagery (Google Earth, 2021);

- NOMIS (NOMIS Web, 2021); and
- Stats Wales (Stats Wales Welsh Government, 2021).

27.4.3.2 The purpose of the baseline data collection which is set out in Section 27.5 was to identify relevant sensitive receptors within the Study Area that could potentially be impacted during construction and operation and maintenance and decommissioning of the Project.

27.4.4 Site Visit / Surveys

27.4.4.1 Site visits and surveys were not undertaken for the Project. At the time of baseline data collection COVID-19 restrictions were in place and instead remote consultation (online/ by phone) with a number of businesses and recreational groups was undertaken as set out in Section 27.3. These consultations were used to inform the assessment and a site visit was not considered necessary.

27.4.5 Assessment of Potential Effect Significance

27.4.5.1 The assessment of impacts takes into account sensitivity of the receptor, magnitude of impact and significance of effect, including duration. The criteria used for assessment of socio-economic, tourism and recreation impacts are set out below. Health impact assessment follows different criteria in line with HIA guidance.

Sensitivity

27.4.5.2 Sensitivity in the context of socio-economics issues has been taken to comprise the capacity of the receptor in question to deal with change, with specific reference to issues such as adaptability, experience/exposure to change and levels of other existing changes. The qualities addressed in terms of adverse effects include robustness, acceptability, tolerability, and threat levels, as well as adaptability, capability and vulnerability. This is set out in Table 27.3.

Table 27.3 – Sensitivity of Receptors

Sensitivity	Definition
High	Receptor has very limited capacity to avoid, adapt to, accommodate or recover from the anticipated impact.
Medium	Receptor has limited capacity to avoid, adapt to, accommodate or recover from anticipated impact.
Low	Receptor has some tolerance to avoid, adapt to, accommodate or recover from anticipated impact.
Negligible	Receptor is generally tolerant of and can accommodate or recover from the anticipated impact.

Magnitude of Impact

27.4.5.3 The magnitude of impact factors considered relate to the scale of change (impact) that might take place. This was defined in terms of the geographical scale and the intensity of change (impact). Definitions are provided for both adverse and beneficial effects, see Table 27.4.

Table 27.4 – Definitions of Magnitude of Impact

Magnitude	Definition
High	Loss of resource, but not affecting integrity of the resource; partial loss of or damage to key characteristics, features or elements (adverse). Permanent / irreplaceable change, which is likely to occur. Improvement to, or addition of, key characteristics, features or elements of the resource; improvement of attribute quality (beneficial).
Medium	Minor loss of, or alteration to, one (or maybe more) key characteristics, features or elements; measurable change in attributes, quality or vulnerability (adverse). Long-term though reversible change, which is likely to occur. Minor improvement to, or addition of, one (maybe more) key characteristics, features or elements of the resource; a minor improvement to attribute quality (beneficial).
Low	Very minor loss of, or alteration to, one (or maybe more) key characteristics, features or elements; measurable change in attributes, quality or vulnerability (adverse). Short to medium-term though reversible change, which is likely to occur. Very minor improvement to, or addition of, one (maybe more) key characteristics, features or elements of the resource; very minor improvement to attribute quality (beneficial).
Negligible	Temporary or intermittent very minor loss of, or alteration to, one (or maybe more) characteristic, feature or element; possible change in attributes, quality or vulnerability (adverse). Short-term, intermittent and reversible change, which is unlikely to occur. Possible very minor improvement to, or addition of, one (maybe more) characteristic or element; possible improvement to attribute quality (beneficial).

Significance of Effect

27.4.5.4 In terms of assigning levels of significance, a standard EIA matrix, comprising (receptor sensitivity x magnitude of impact) was used, with compatible classifications of adverse and beneficial effects. This is detailed in Table 27.5.

Table 27.5 – Effect Significance Matrix

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

Duration of effect

27.4.5.5 When determining the significance of an impact, as well as taking into account the magnitude, consideration needs to be given to; the duration of the impact, i.e. will the impact be temporary or permanent; short, medium or long term. For the purpose of this assessment, short term effects are considered to be of one year or less, medium term effects of one to four years and long term effects for more than four years.

27.4.5.6 The approach to making balanced assessments for the Project has been guided by technical specialists, using available data, experience and expert judgement.

27.4.5.7 The socio-economic assessment initially involved a review of baseline conditions within the Study Areas as described in Section 27.4.2. This was then compared against the potential impacts (beneficial or adverse) from the Project.

27.4.5.8 This impact assessment considers the potential for impacts during the construction, operations and maintenance and decommissioning phases of the Project.

27.4.5.9 Impacts have been classified as follows:

- Direct impacts: these may arise from impacts associated with the construction, operations and maintenance, or decommissioning of the Project;
- Indirect impacts: these may be experienced by a receptor that is removed from the direct impact; and
- Cumulative impacts: these may occur as a result of the Project, in conjunction with other existing, or planned projects within the study area, for each receptor.

27.4.5.10 The methodology that has been followed is based upon a clear and concise set of definitions for sensitivity of receptor and magnitude of effect, which have then been combined to give an assessment of potential significance.

Human Health

27.4.5.11 Human health is influenced by a range of indirect and direct factors; some controllable such as lifestyle, and some uncontrollable such as genetics. In determining physical, mental and social wellbeing, factors known as “determinants of health” are considered which reflect the range of influences, from society and the environment, on an individual. The wider determinants of health are illustrated in Graphic 27.1 below, which demonstrates how human health spans environmental, social and economic aspects.

Graphic 27.1 – Determinants of Health (source Dahlgreen and Whitehead as amended by Barton and Grant, 2006)

27.4.5.12 In line with best practices and methodologies for undertaking Health Impact Assessments (HIA) (Public Health Wales, 2007)], wider determinants of health are considered in this assessment to understand the likely impacts on human health as a result of the Project. The methodology has been informed by emerging best practice published by the International Association for Impact Assessment (IAIA) and the European Public Health Association (EuPHA), as well as professional judgement.

27.4.5.13 Impacts from a proposed development that result in a change to determinants of health, have the potential to cause beneficial or adverse effects on health, either directly or indirectly. The determination for how significant these effects are based on the sensitivity of receptors and the magnitude of an impact.

27.4.5.14 For human health assessments, sensitivity is understood as a populations' capacity to accommodate changes that a proposed development may bring about. Factors characterising sensitivity for human health are set out in Table 27.6 (adapted from Figure C-1 and Table C-1 of Cave, B., et al, 2020). The criteria included in this table inform professional judgement in scoring a high, medium, low or negligible sensitivity for a population.

Table 27.6 – Human Health Sensitivity

	Life stage	Deprivation	Inequalities	Health status	Outlook
Higher sensitivity	Presence of dependants (particularly the elderly or children), pregnant women, unstable work or the economically inactive.	High levels of overall deprivation or a high level of deprivation for a relevant sub-domain of the indices of multiple deprivation. High levels of poor access to facilities or resources.	High levels of inequalities or inequities.	High levels of poor health and/or disability (particularly multiple or complex long-term health conditions). High reliance on (or low capacity in) healthcare facilities, staff or resources.	Presence of groups with strong views or high degrees of uncertainty about the project who may anticipate risks to their health and thus be affected by not only actual changes, but also by the possibility of change.
Lower sensitivity	Predominantly a working age population in steady good quality employment.	Low levels of overall deprivation or a low level of deprivation for a relevant sub-domain of the indices of multiple deprivation. Good access to financial, social or political resources.	Low levels of inequalities or inequities.	Low levels of poor health and/or low levels of disability. Low reliance on (or high capacity in) healthcare facilities, staff or resources.	No indication that strong views are held about the project. People are well informed of the issues and potential effects.

27.4.5.15 Factors characterising the magnitude of human health effects are set out in Table 27.7 (adapted from Figure C-2 and Table C-2 of Cave, B., et al, 2020). The criteria inform the professional judgement of assigning a scoring of large, medium, small or negligible magnitude.

Table 27.7 – Human Health Magnitude

	Extent	Frequency	Reversibility	Exposure	Severity
Larger magnitude	Most members of the relevant population affected. Substantial population displacement or influx	Continuous or daily effects with chronic (long term) changes in health outcomes.	Permanent change in health outcomes once the project change ceases. Intergenerational effects.	A low (or high) concentration over a long time, or a high concentration over a short time. Low (or high) exposure to a large population or high exposure to a small population. A high degree of resource sharing with the project.	Large change in the risk of developing a new health condition (or injury) or in the progression of an existing condition. Large change in symptoms, quality of life or day-to-day functioning. Large change in inequalities.
Smaller magnitude	Few members of the relevant population. Little change in population.	Monthly or yearly affects with acute (short term) changes in health outcomes	Change in health outcomes reverses once the project change ceases. No intergenerational effects.	A low concentration over a short time. Low exposure to a small population. A low degree of resource sharing with the project.	Small change in the risk of developing a new health condition (or injury) or in the progression of an existing condition. Small change in symptoms, quality of life or day-to-day functioning. Small change in inequalities.

27.4.5.16 The human health assessment will include a narrative for each health determinant to ensure a proportionate approach to identifying the health issues which should play a key role in the decision-making process. The characterisation of sensitivity and magnitude provide consistency with other EIA topics, however additional contextual information also needs to inform the determination of significance.

Significance criteria

27.4.5.17 Table 27.8 (adapted from Table C-3 of Cave, B., et al, 2020) sets out questions to be considered to inform professional judgement on significance. The assessment will seek to respond to these questions when making a determination of major, moderate, minor or negligible significance. For the purpose of the EIA, major and moderate effects are deemed to be Significant.

Table 27.8 – Human Health Significance Guide

Evidence Source	Guidance Question(s)
Scientific literature	Is there a sufficient strength of evidence from sufficiently high-quality studies to support an association between the project change, a relevant determinant of health and a relevant health outcome? Does the literature indicate thresholds or conditions for effects to occur? Are particular population groups identified as being particularly susceptible?
Baseline conditions	Are relevant sensitivities or inequalities identified in the scientific literature present? Does the baseline indicate that conditions differ from relevant local, regional or national comparators? Are their geographic or population features of the baseline that indicate effects could be amplified?
Health priorities	Have local, regional or national health priorities been set for the relevant determinant of health or health outcome (e.g. in Joint Strategic Needs Assessments or in Health and Wellbeing Strategies)?
Consultation responses	Has a theme of consultation responses related to the relevant determinant of health or health outcome?
Regulatory standards	Is the change one that would be formally monitored by regulators? Are there regulatory or statutory limit values set for the relevant context? Has EIA modelling predicted change that exceed thresholds from the scientific literature or set by regulators?
Policy context	Does local, regional or national government policy raise particular expectations for the relevant project change, determinant of health or health outcome (e.g. levels should be as low as reasonably practicable)?

27.4.5.18 Where significant adverse effects are identified, mitigation measures will be identified to reduce or eliminate such effects. Similarly, where significant opportunities to benefit health have been identified, enhancements measures will be proposed.

27.4.6 Standard Mitigation

27.4.6.1 A range of standard mitigation measures has already been applied to the Project as part of the over-arching site selection and iterative design process (see below and Chapter 3: Site Selection and Alternatives). These have been introduced to minimise potential impacts of the Project on any affected receptors.

27.4.6.2 Standard mitigation measures which the Project has already implemented, or is committed to in the future, in order to minimise potential impacts on socio-economics are listed below:

- A Construction Environment Management Plan (CEMP) will be produced in accordance with each of the relevant part of the Project. Each CEMPs would explain how the activities of contractors and sub-contractors would be required to comply with its requirements, including where necessary the production of subsidiary plans in relation to specific construction matters;
- In addition, work to install the onshore export cable in the highway will be required to comply with the Traffic Management Strategy (Chapter 25: Traffic and Transport), with individual Traffic Management Strategies to be produced for all locations where the onshore export cable is buried in, or impacts on, the uninterrupted use of the highway by vehicular traffic; and
- Proposed site access routes will utilise temporary haulage roads which will minimise the interface between the Project and the public road system. However, the haulage roads will be connected to the local road network at certain points, which may result in minor roadworks where necessary.

27.4.6.3 Impact specific standard mitigation is listed below.

Disruption to recreational vessel activity:

- Use of Safety Zones around installation vessels during construction, major maintenance works and decommissioning;
- Project vessels to exhibit appropriate lightings and markings at all times; and
- Structures within the array area will be marked and lit in accordance with International Association of Lighthouse Authorities technical guidance (IALA, 2021).

Disruption/reduced access for coastal tourism:

- Areas required for longer-term construction works, such as Trenchless methods or use of Horizontal Directional Drill (HDD), for the installation of the onshore export cable will also be reviewed by the construction contractors to determine whether there are any opportunities to reduce areas within Pembrokeshire Coast National Park required for long-term works;
- Areas of the Pembrokeshire Coast National Park will be restored to the same condition as they were in prior to construction; and
- To reduce the interface between the construction activity and the tourist season in the area, programme the activities that can be undertaken in the winter, outside of the tourist season.

Disruption/ reduced access to local businesses:

- Businesses who are likely to be impacted during construction will be consulted about access requirements and where possible construction activities programmed to avoid the most sensitive periods or align with a businesses needs;
- Where construction activities impact on the ability for customers to determine whether or not a business is still open, signage will be erected such as ‘Business as Usual signs’ to publicise that the business is still open;

- The contractor would need to develop these measures so that communication methods are effective during construction; and
- To reduce the interface between the construction activity and local businesses programme the activities that can be undertaken outside of busy periods. For example, no weekend, school holidays or bank holiday working.

Disruption/reduced access for coastal recreational users:

- Public access to beaches will be maintained at all times (although some sections of beach may be inaccessible during construction works, these areas will be signposted for the public).

Disruption/reduced access for terrestrial recreational users:

- Temporary diversions would be in place on the Wales Coast Path and will be designed to avoid adding substantial distance to the journey length of the route and pedestrian access will be retained at all times; and
- A traffic light system will be used within the construction phase for a two-lane road, to control traffic flows so that only a single lane is closed (when constructing the trenches to lay the onshore export cable) when and where possible. For single-lane roads, the road will be fully closed when work is being undertaken. Signage advising detours would be erected at the road outlets. Afterwards the area will be fully reinstated.

Socio-economics:

27.4.6.4 Measures will be put in place, where possible, to maximise the potential for the workforce and supply chain to be sourced locally. These measures could include:

- Working with local people and local business to ensure that, where practicable, investment is retained with Pembrokeshire at a local level and Wales at a national level;
- Engaging with Jobcentre Plus to ensure local job opportunities, where practicable are advertised to local unemployed people and identifying opportunities to help people get back into employment through work placements, education and skills training;
- Providing opportunities for upskilling individuals working on the Project, where practicable through experience, training and development programmes; and
- Blue Gem Wind is delivering a STEM focussed education programme in local schools to deliver offshore wind and climate change as part of the National Curriculum and to promote jobs for future generations.

Human Health:

27.4.6.5 All emissions produced via onshore construction works will comply with relevant guidance and approved levels. Refer to Chapter 22: Onshore Noise and Vibration and Chapter 26: Air Quality for further information.

27.4.6.6 Where significant adverse impacts have been identified as a result of the Project, additional mitigation measures are proposed to seek to reduce residual impacts to non-significant levels. These additional measures relevant to recreation and tourism, socio-economics and human health, are outlined within Section 27.7.

27.4.7 Assessment for Residual Effect Significance

27.4.7.1 Each of the potentially significant issues were assessed according to receptor sensitivity and magnitude of impact, and where appropriate, each assessment considered the standard and embedded mitigation which has been applied. Consequently, the level of residual effect was predicted from the measures implemented. The residual effects classification was based on the same definitions as the impact matrices above.

27.4.8 Limitations to Assessment

27.4.8.1 The assessment of impacts and the significance of effects has been carried out against a benchmark of the current community and socio-economic baseline conditions prevailing around the Project. As with any dataset, these may be subject to change over time, which may influence the findings of the assessment. However, there is enough information available to make a sufficiently robust assessment of significance.

27.4.8.2 From a socio-economic impact perspective, there are limitations associated with the assessment. The lowest level of baseline data is only available at a county (Pembrokeshire) level although this has provided comprehensive metrics covering current demographics and labour market characteristics in the county. This is covered in the 'Baseline Conditions' section below.

27.4.8.3 The input data used in the socio-economic impact assessment (such as the Project capital and operating cost estimates) are based on information provided by the Applicant.

27.4.8.4 The assessment is based on the Project information within Chapter 4: Proposed Development Description.

27.5 Baseline Conditions

27.5.1 Tourism and Recreation

27.5.1.1 The location of tourism and recreation users and businesses can be found within Volume 2, Figure 27.1.

27.5.1.2 This section presents the current and future baseline information with regards to the following Tourism and Recreation characteristics, which are relevant to the Project:

- Tourism;
  - Terrestrial and coastal tourism;
  - Local Business related to tourism.
- Recreation;
  - Terrestrial recreation;
  - Coastal recreation; and,
  - Marine recreation (recreational vessels).

Tourism

27.5.1.3 Tourism is a key industry in Pembrokeshire and makes an important contribution to the local economy. The Pembrokeshire Tourism website states that "*Tourism affects every type of business either directly or indirectly in Pembrokeshire. Our country's economy benefits from an injection of around £585 million per year from tourism and supports around 16,000 jobs annually*" (Visit Pembrokeshire, 2021). The Office of National Statistics indicated in 2020 that approximately 20% of people in Pembrokeshire were employed in the accommodation and food service activities, and 4% of people in Pembrokeshire work within the Arts Entertainment and Recreation sector.

27.5.1.4 Tourism in south west Wales is a key industry within the region which has experienced growth in recent years. Between 2013 and 2016 the average number of tourist visits to the region increased by 3% with 23,552 visits recorded between 2016-2019, related expenditure also increased to £1,172 million for the same period (Welsh Government, 2021). Pembrokeshire is a popular destination for tourists, and they are attracted by the unspoiled scenery, landscape and abundant wildlife, and the opportunity to visit the sandy beaches (Pembrokeshire Coast, 2021).

Coastal Tourism

27.5.1.5 The Pembrokeshire Coast National Park is the only fully coastal National Park in the UK. The National Park has a variety of landscapes including steep limestone cliffs, red sandstone bays, rolling hills and volcanic headlands. The natural landscape around the coast appeals to a wide range of visitor types.

27.5.1.6 The Pembrokeshire Coastal Path is a world renowned 186-mile path starting in St Dogmaels in north Pembrokeshire and ending in Amroth, south Pembrokeshire. Hiking and walking are one of the most popular activities in the National Park, and attract around 1 million users annually, representing one of the county's most important economic assets (Visit Wales, 2021). Other activities within the National Park include rock climbing, coasteering and sea kayaking.

27.5.1.7 Due to the unspoiled and untouched nature of the Pembrokeshire Coast National Park, including mature hedgerows and coastal heathland rich with wildflowers, it provides an ideal home to many native species which can be observed via walks and guided boat and dive tours. Such species include:

- Rare birds such as choughs, skylarks and stonechat; and
- Atlantic grey seals, dolphins and porpoises, basking sharks, blue sharks, various jellyfish and turtles (Pembrokeshire Coast Wales, 2021).

27.5.1.8 Pembrokeshire contains a large number of beaches, small towns and villages that are key to the local tourist industry. Across Pembrokeshire, 12 beaches were awarded Blue Flag Award status in 2021, which is the highest number of any county in Wales. In total, 14 beaches were also awarded the prestigious Green Coast Award in 2021 (Visit Wales, 2021). The beaches at West Angle Beach, Angle Bay and Freshwater West Beach all fall within the tourism and recreation Study Area of the Project.

27.5.1.9 There are a number of advertised tourist attractions in Pembrokeshire which are located within 5 km of the Project landfall, the onshore export cable corridor and substation (at their closest point). These include:

- Pembrokeshire Coastal Path traverses the Study Area in close proximity to the offshore export cable landfall, bisecting the route of the onshore export cable corridor.
- Chapel Bay Fort and Museum located adjacent to West Angle Bay, approximately 500m north east of the onshore export cable corridor;

- Pembroke Dock Heritage Centre located 3.5 km east of the onshore export cable corridor;
- Milford Haven Heritage and Maritime Museum located 4.5 km north of the landfall; and
- Pembroke Castle located 4.8 km east of the onshore export cable corridor.

27.5.1.10 There are a number of attractions and events, within 5 km of the Project landfall, which increase visitor numbers in the County, ranging from local festivals and sporting events, some of which are listed below:

- Festivals;
  - Pembrokeshire Fish Week – biennial event based in Milford Waterfront located 5 km north; and
  - Seafair Haven Festival – A biennial event for watercraft enthusiasts taking place in Lawrenny, Pembrokeshire. It has taken place since 2006 having originally been run by the Port of Milford Haven and includes a range of small boats in a week long programme of sailing and entertainment.
- Sporting Events;
  - Ironman Wales is held in Tenby and surrounding area, attracting over 2,000 competitors and tens of thousands of spectators each year. The bike course element of the triathlon event includes roads on the Angle Peninsula.

27.5.1.11 Further details on coastal recreation and chartered boat and diving tours are described within Section 27.5.1.34.

27.5.1.12 The National Park is of national importance, but visitors will have some ability to respond to impacts, in relation to the places they visit within the National Park. In addition, the tourist attractions within Pembrokeshire are important for supporting the local economy and are assessed as being of high sensitivity as they have a fixed location. However, many attractions are not within the footprint of landfall or the onshore export cable corridor and may therefore have some capacity to adjust to general disruption caused by construction and decommissioning works.

27.5.1.13 Tourism users are therefore assessed as being of medium sensitivity with reference to Table 27.3 – Sensitivity of Receptors.

Local Businesses related to Tourism

27.5.1.14 Pembrokeshire has a wide range of accommodation offers which can be placed in the following categories: hotels, Bed and Breakfasts (B&B) and guest houses, self-catering cottages, caravan parks, ‘glamping’ (glamourous, high end camping, commonly in purpose built camping pods, yurts or tepees), holiday villages, bunkhouses and hostels and campsites.

27.5.1.15 The Angle Peninsula has a range of accommodation including several caravan parks and camp sites: Castle Farm Camping located adjacent to East Angle Bay, Gupton Farm Campsite located adjacent to Freshwater West, and Newton Farm Caravan and Camp Site located 2 km north of Freshwater West. The area also contains several bunk houses, cottages and B&Bs situated off the B4319.

27.5.1.16 There are also a number of recreational businesses which rely on tourism for income, these are also covered in Section 27.5.1.34.

27.5.1.17 Businesses within the tourism and recreation Study Area have been identified in consultation with PCF due to their importance of attracting and supporting tourism. Each of the businesses were consulted as they may be potentially impacted by the Project.:

- West Angle Bay Caravan Park located 100 m south from the onshore export cable corridor;
- Café at West Angle Bay (Wavecrest Café) located 100 m south of the HDD (northern alignment) at landfall and onshore export cable corridor;
- Castle Farm Camping located 1 km north from the onshore export cable corridor;
- Newton Farm Campsite located 130 m south from the onshore export cable corridor;
- Café Mor located 2 km south from the onshore export cable corridor;
- Pembrokeshire Surf Club Outer Reef Surf School located 2 km south from the onshore export cable corridor;
- Celtic Deep Tours operate within and around the offshore array area;
- Broadside Boat Charters operate within and around the offshore array area; and
- Celtic Charter operate within and around the offshore array area.

27.5.1.18 It should be noted that tourism assets for the purposes of this assessment are considered to be tourism related businesses e.g. accommodation or visitor attractions situated within the Study Area.

27.5.1.19 Businesses with a fixed location, such as accommodation providers (including campsites and caravan parks) and cafes are assessed as being of high sensitivity, as they have very limited capacity to avoid impacts arising from the Project (Table 27.3). Businesses which are mobile are assessed as having medium sensitivity, as they do have some capacity to avoid impacts, although they do use the areas affected by the Project.

Recreation

27.5.1.20 The Welsh Outdoor Recreation Survey (National Resources Wales, 2016) interviewed a representative selection of people in Wales to gain an insight into the recreational behaviour of the national population. For the Pembrokeshire Spatial Plan Area, the number of respondents that had carried out activities at least once in a 12 month period was the highest in Wales for walking, outdoor swimming, running, road cycling, fishing, watersports, motorised watersports and joint highest with North West Wales for climbing and central Wales for horse riding. For people visiting the outdoors once a day Pembrokeshire also scored higher than any other Spatial Plan area in Wales. The most popular activities that residents suggested they would like to do more were walking 31%, water sports 10%, road cycling 9%, sightseeing or visiting an attraction 8% and swimming outdoors 6%. Fresh air (43%) and health/exercise (43%) were the most common reasons given for undertaking outdoor activities.

27.5.1.21 This section has been informed by data provided by Wales Activity Mapping (Pembrokeshire Coastal Forum, 2019) which was compiled in 2019. WAM is a collaborative stakeholder project which provides detailed information on a range of marine and coastal activities and maps the type, quantity and location of recreational activities taking place on the South west Wales coastline. The aim of the data is to develop the understanding of current and likely future coastal recreation trends, to inform marine planning and coastal land managers.

Terrestrial Recreation

27.5.1.22 West Angle Bay is situated on the northwest of the Angle Peninsula at the mouth of the Milford Haven Estuary. The beach is located within a small cove, and is narrow at high tide, but comprises a large stretch of sand with rocky headlands at low tide, which is popular for informal recreation such as rock pooling.

27.5.1.23 Angle Bay is situated to the south of the Haven Waterway and the sand and mud flats attract wildfowl and wading birds, and is a popular bird watching site, visited more frequently during the winter months to view migratory species. Freshwater West beach is backed by a dune system and expansive wetland (known as Castlemartin Corse) is also commonly used for wildlife watching all year round.

27.5.1.24 The Wales Coast Path is a network of coastal paths which follows the majority of Wales' coastline (Wales Coast Path. 2021). In Pembrokeshire, the Wales Coast Path comprises 260 km of coastline known as the 'Pembrokeshire Coast Path': considered to be one of the most important visitor assets to the area (Pembrokeshire Coast, 2021)

27.5.1.25 Part of the Wales Coast Path forms a circular route within the Study Area, which is known as the Angle Circular Coast Path Walk. The route is 16 km in length and starts / ends at East Angle Bay and skirts around the Angle Peninsula. A small part of the walk is along the B4319, with the majority taking place on the National Trail, taking in views across Freshwater West, and northwest across to St Ann's Head, before passing West Angle Bay, and heading east with views across Milford Haven and Angle Bay.

27.5.1.26 There are a number of Public Rights of Way (PRoW) within the Study Area and these are shown in Volume 2, Figure 27.1.

27.5.1.27 The beaches at West Angle Bay, Angle Bay Beach and Freshwater West also provide recreational opportunities for runners and walkers.

27.5.1.28 The nearest Sustrans Cycle Route is located outside of the Study Area comprising Sustrans Local Cycle Route 4 which bypasses the Study Area to the east through Lamphrey and into Pembroke Dock before heading north to Milford Haven. However, the Angle Peninsula is popular for cycling, particularly cyclists using the B4319 and B4320 as a training ride for events such as Ironman Wales, Long Course Weekend and other sporting events.

27.5.1.29 Users of the Wales Coast Path are assessed as being of high sensitivity, as it is a unique route of national status. Users of other locally designated footpaths and cycleways are assessed as being of medium sensitivity due to their ability to seek alternative routes on the network.

Coastal Recreation

27.5.1.30 Marine recreational use in and around the array area and offshore export cable corridor is limited due to its distance offshore, however, it does include a low level of recreational sailing activity which has been recorded in this area Volume 2, Figure 27.1.

27.5.1.31 Recreational use increases closer to shore, with a higher density of recreational activities including rowing, wind surfing, kayaking, canoeing, and surfing. It has been noted that with the rise of the staycation market in 2020, recreational activity within Milford Haven and around the Angle Peninsula is higher when compared to the same months in 2019 (RYA, 2021).

27.5.1.32 West Angle Bay and Freshwater West beaches are popular for swimming, both are wide sandy beaches exposed to the prevailing south westerly winds and waves. Freshwater West is a renowned for body boarding and surfing. Windsurfing and SUP journeys are undertaken at both beaches.

27.5.1.33 Pembrokeshire is a popular destination for sea kayaking for both novices and experienced paddlers and kayaking is undertaken along the majority of the Angle Peninsula coastline. All activities are most frequently undertaken during the summer months, with surfing being busy throughout the year, especially during the winter swells (Pembrokeshire Coastal Forum, 2021).

Marine Recreation (recreational vessels)

27.5.1.34 Pembrokeshire offers a wide range of marine recreational activities. These include deep sea fishing, catch and release Shark fishing, and diving on the offshore reefs, wrecks and reef sites located within the waters around Milford Haven.

27.5.1.35 Several companies, operating from Milford Haven, Neyland and Dale, offer wildlife boat trips, fishing charters and historical cruises. The trips include routes upstream within Milford Haven Waterway, trips to the islands of Skomer, Skokholm and Grassholm passing St. Annes Head, or further offshore to the Celtic Deep.

27.5.1.36 The Milford Haven Waterway is used frequently by power boats and cruiser sailing, undertaking day trips within the estuary to Dale and Watwick Bay or out to the islands of Skomer and Skokholm. Recreational angling boats regularly visit areas to the northwest of Angle Bay, around Stack Rock, off the coast of Rat Island, in deeper waters between St Anne's Head and Sheep Island and off Angle Peninsula. These areas are used most frequently during late spring and during the summer holidays.

27.5.1.37 Pembrokeshire is one of the UK's top dive destinations. Dive operators provide trips to offshore dive sites which include: the reefs and waters surrounding Skomer, Skokholm and Middleholm Islands, and established dive sites and wreck sites closer inshore.

27.5.1.38 Recreational vessels that use the area surrounding the array site are predominantly local vessels, operating out of the large number of local ports and harbours in the south Pembrokeshire region. These include Neyland Marina, Milford Marina, Tenby and Saundersfoot. Some recreational vessel activity will also be associated with visiting vessels from home ports further afield, including north Wales, north Devon, Cornwall, and the Republic of Ireland. There are nine Royal Yachting Association (RYA) clubs, nine RYA training centres, and also a number of marinas and slipways across the south Pembrokeshire region. Sailing in yachts or dinghies, is by far the most abundant activity on the Milford Haven Waterway much of which is associated with the yacht clubs.

27.5.1.39 Coastal and marine recreational users do have other areas available, although it acknowledged that some areas of frequent use will be affected by the Project, and therefore the sensitivity of users is considered to be Medium.

Tourism and Recreation Receptors and Receptor Sensitivity

Based on the information set out within the tourism and recreation baseline, the following receptors have been identified with associated sensitivities. These are set out in

27.5.1.40 Based on the information set out within the tourism and recreation baseline, the following receptors have been identified with associated sensitivities. These are set out in Table 27.9 below.

Table 27.9 – Tourism and Recreation Receptor Sensitivities

Receptor	Potential Impact	Geographical Impact Area	Sensitivity of Receptor
Construction Phase			
Coastal tourism users	Disruption/reduced access	Local - Pembrokeshire	Medium
Business users (with a fixed location)	Disruption/ reduced access	Local - Pembrokeshire	High
Business users (with a mobile location)	Disruption/ reduced access	Local – Milford Haven Waterway, offshore export cable corridor and array area	Medium
Coastal recreation users	Disruption/reduced access	Local - Pembrokeshire	Medium
Terrestrial recreation users	Disruption/reduced access	Local - Pembrokeshire	Medium
Marine recreation Users	Disruption to recreational vessel activity	Local – Milford Haven Waterway, offshore export cable corridor and array area	Medium
Operational Phase			
Marine Recreation Users	Disruption to Recreational Vessel Activity	Local – Milford Haven Waterway, export cable route and array area	Medium
Decommissioning Phase			
As per construction phase	-	-	-

27.5.2 Socio-economics

27.5.2.1 The socio-economic impact of the Project covers its impact on the local area and economy, including the positive and negative impacts on supply chain businesses. Before describing and quantifying the socio-economic impacts, the current baseline situation in the area is described in detail. This covers both a supply-side and a demand-side analysis of the current demographic, economic and labour market characteristics in the area.

27.5.2.2 The socio-economic baseline information presented here uses publicly available data from a number of difference sources, including the Office for National Statistics (ONS), NOMIS and Stats Wales. The data shows how the socio-economic baseline in Pembrokeshire compares against other areas. The desktop review is broken down into three types of analysis: supply-side analysis, demand-side analysis and consultation findings.

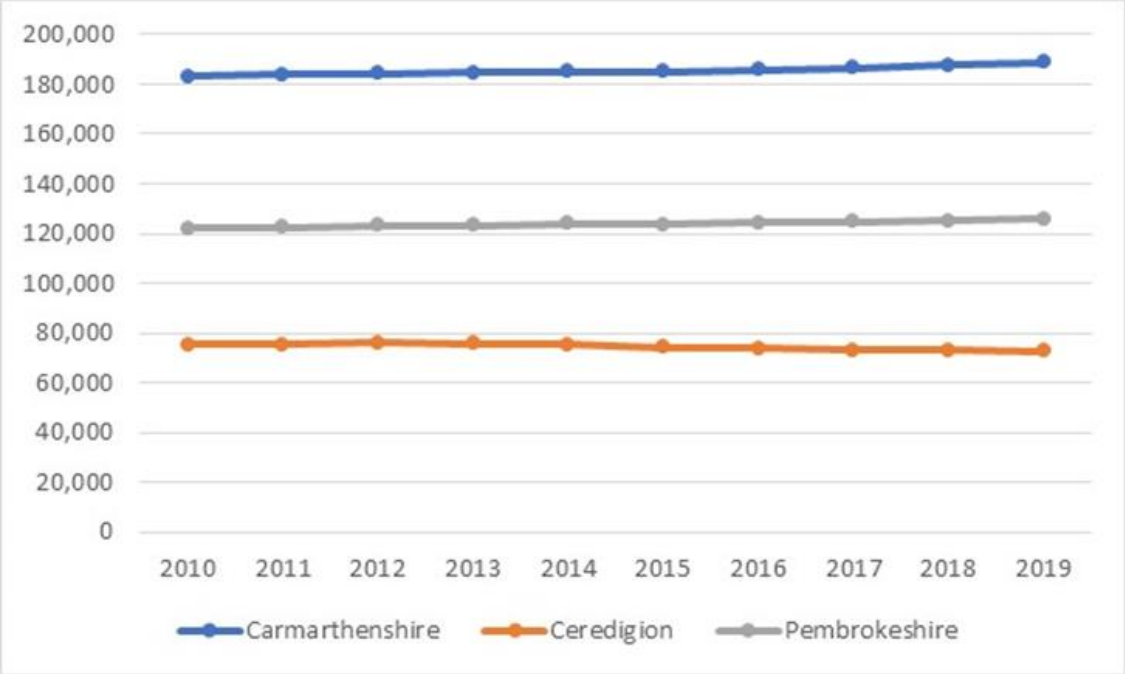
27.5.2.3 The desktop review has investigated the socio-economic characteristics relating to Pembrokeshire, south west Wales (Pembrokeshire, Carmarthenshire and Ceredigion) and Wales. The structure of the desktop review is listed in Table 27.10.

Table 27.10 – Socio-economic Characteristics

Characteristics	Local/sub-regional populations
Demographics and population trends	Population forecast
	Age profiles
	Working age population.
Economic activity	Economic activity rate
Unemployment rates	Employment rate
	Unemployment rate
	Claimant count
Qualifications	NVQ – No qualifications
	NVQ – Level 2 and above
	NVQ – Level 4
Indices of Deprivation	NA
Wales Indices of Deprivation	NA

Local / sub-regional populations

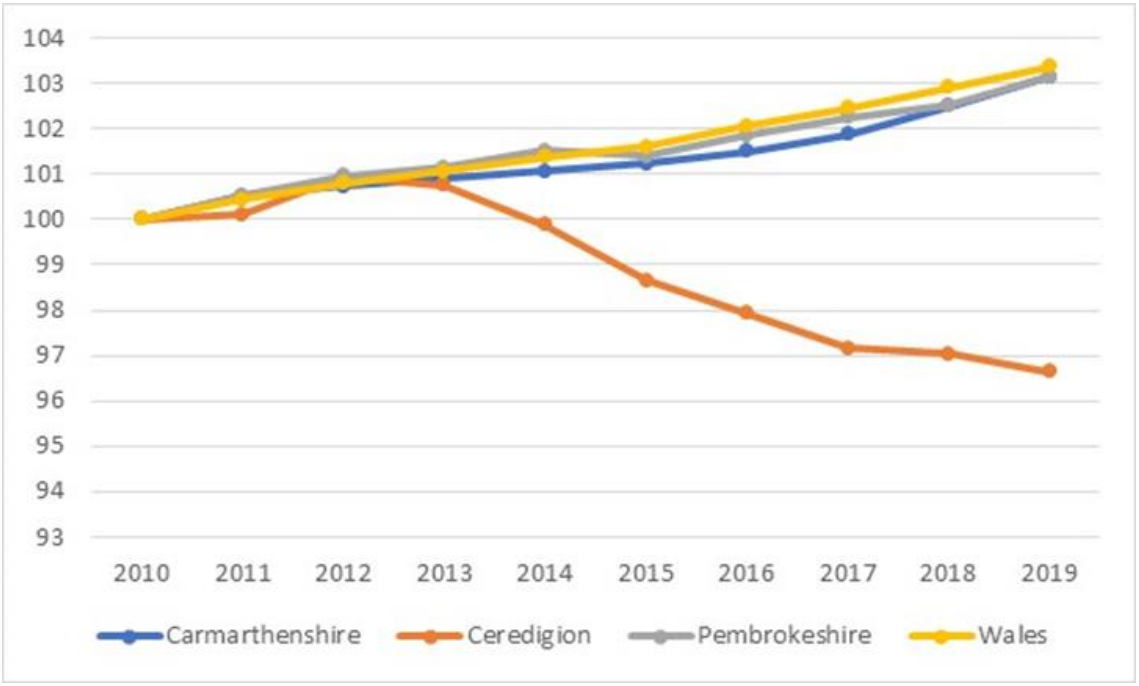
27.5.2.4 The population of Pembrokeshire in 2019 was 125,818, according to the mid 2019 Population Survey undertaken by the ONS. The population has increased by 3.2% since 2010, the same growth rate as Carmarthenshire but below the Wales average of 3.4%. Graphic 27.2 shows the population trend of the three local authority areas in the south west Wales study area.



Graphic 27.2: Population of south west Wales Counties, 2010-19

Source: Office for National Statistics, Mid-Population Estimates, May 2020

27.5.2.5 Pembrokeshire has experienced low levels of demographic growth since 2010 with the population increasing by 3,081 over the period whilst Carmarthenshire and Ceredigion experienced population change of 5,767 and -2,522 respectively. Different counties have experienced different levels of population growth since 2010 and Graphic 27.3 shows the increase in population indexed to 100 in 2010 for each local authority in the study area as well as the Wales average.



Graphic 27.3: Population Change in South west Wales (2010-19)

Source: Author calculation based on Mid-Population Estimates, May 2020

27.5.2.6 Graphic 27.3 shows that the rate of increase was broadly similar across Carmarthenshire, Pembrokeshire and Wales over the period, with an index score of 103.2, 103.2 and 103.4 respectively in 2019. Ceredigion was the only county in South west Wales that experienced a decline in its population, decreasing from an index of 100 in 2010 to 96.6 in 2019. Further analysis will show the change in population expected over the next 10 to 20 years.

Forecast in population

27.5.2.7 Comparing the 2018 population totals with those forecast 25 years into the future, by 2043, the projected population of Wales is expected to be 3,309,154, an increase of 5.4%. This represents a slightly higher growth rate than in Pembrokeshire and Carmarthenshire with growth rates of 4.1% and 5.1% respectively. Ceredigion's population is projected to continue declining with an overall decrease of 5.8%.

Table 27.11 – Population Forecast in Wales and SW Wales Regions

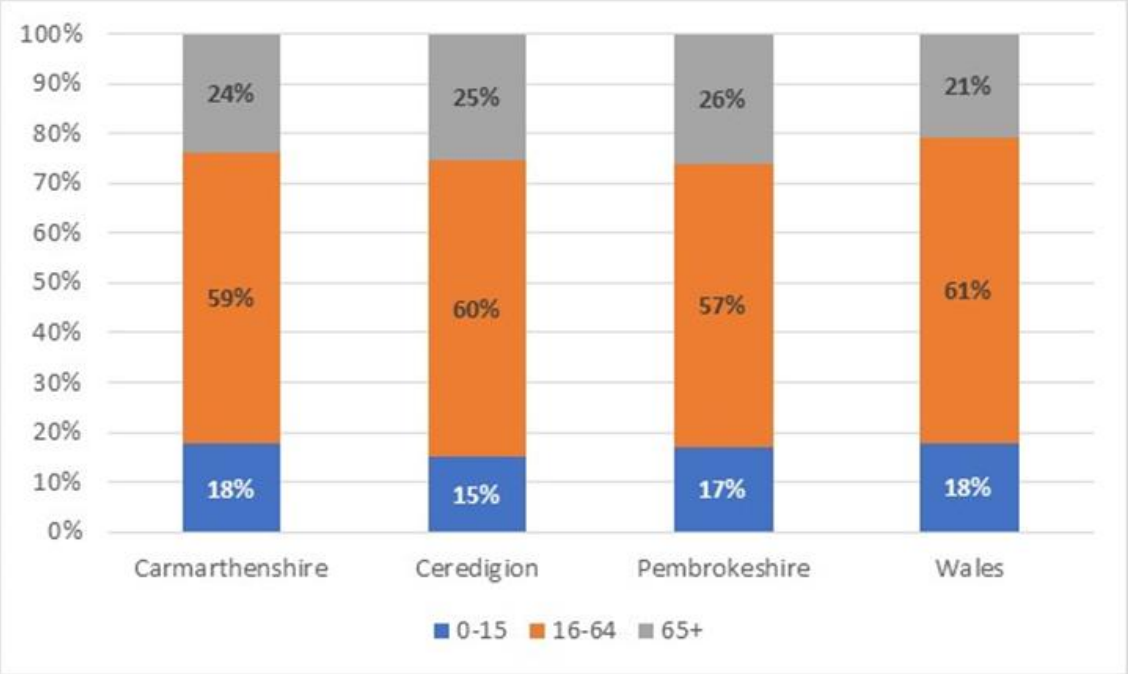
Region	Population in 2018	Population in 2043	2018 – 2043 rate of change, %	Compound Annual Growth Rate (CAGR), %
Wales	3,138,631	3,309,154	5.4%	0.2%
Ceredigion	72,992	68,745	-5.8%	-0.2%
Pembrokeshire	125,055	130,196	4.1%	0.2%
Carmarthenshire	187,568	197,218	5.1%	0.2%

Source: Stats Wales, 2018-based local authority population projections for Wales, 2018 to 2043, August 2020

27.5.2.8 Table 27.11 shows the Compound Annual Growth Rate (CAGR) with Pembrokeshire's population expected to grow at the same rate as that in Wales and Carmarthenshire. This will create the need for investment in a variety of areas, including transport, housing and healthcare amongst other services.

Age Profiles

27.5.2.9 To understand the changes in the labour market resulting from population changes in Pembrokeshire and the wider South west Wales region, it is important to understand the breakdown of the population by age. Graphic 27.4 shows the breakdown of population across the three main age cohorts when analysing labour market trends: 0-15, 16-64 and 65 and above.



Graphic 27.4: Population by Age Cohort of Selected Geographies in 2019

Source: Office for National Statistics, Mid-Population Estimates, May 2020

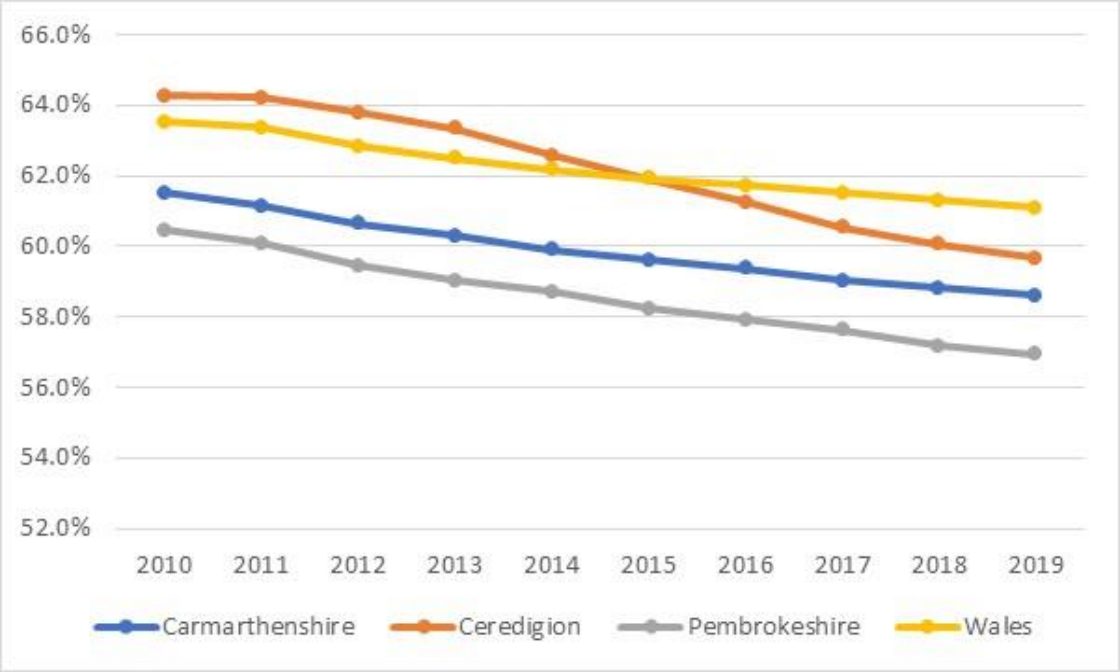
27.5.2.10 Pembrokeshire has the highest proportion of its population aged 65 and over, 5% higher than the Wales average of 21%. It also has a lower proportion of its population (57%) in the working age cohort (16-64) compared to Carmarthenshire, Ceredigion and Wales. This could exacerbate problems in the labour market given a potential shortage of those of working age. Given that the state pension age has increased to 66 years for both men and women in October 2020 and is likely to continue to increase in the future, it is important that there are suitable levels of employment provided for all age cohorts, including those in the latter years of their working careers. Ensuring that employees have the right skill sets to match the roles available is also important with respect to a sustainable local labour market.

Working Age Population

27.5.2.11 Understanding the trend in the working age population is important when determining the amount of labour available at any given time.

27.5.2.12 Graphic 27.5 shows the general trend across Wales and the three counties of south west Wales. There is a declining share of people of working age and this again could result in labour shortages over time.

Source: Office for National Statistics, Annual Population Survey

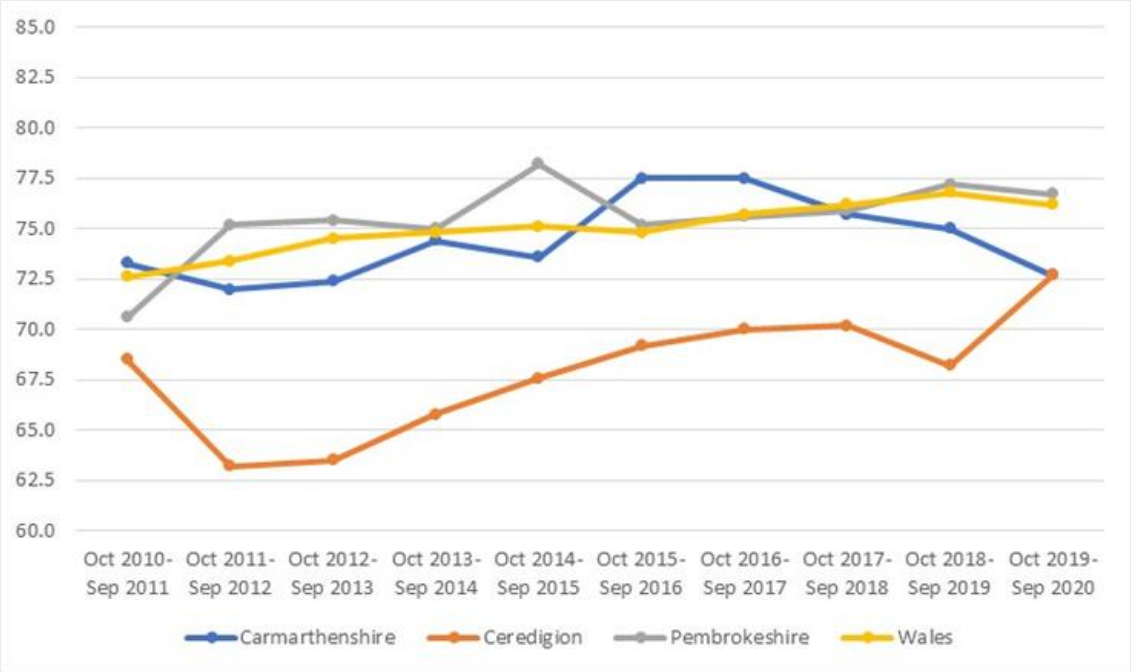


Graphic 27.5: % of Population Aged 16-64

27.5.2.13 Graphic 27.5 shows that the pattern across all the geographic areas is a declining working age population. Pembrokeshire had the lowest percentage of working age population in 2010 at 60.5% and this had decreased further to 56.9% in 2019. This is lower than the average in Wales as well as in both Carmarthenshire and Ceredigion. All three counties in South west Wales had a lower proportion of working age population compared to the Wales average of 61.1% in 2019.

Economic Activity

27.5.2.14 Those who are economically active are defined by the Office for National Statistics as people who are currently in employment or unemployed (with the latter seeking active employment). Having a high level of economic activity is essential for a thriving economy as it will increase the average level of income, which ultimately helps to provide a better standard of living. Graphic 27.6 demonstrates that the level of economically active people aged 16-64 was higher in Pembrokeshire than in other areas in South west Wales as well as being higher than the average in Wales.



Graphic 27.6: % of Population Aged 16-64 Economically Active

Source: Office for National Statistics, Annual Population Survey

27.5.2.15 The data shows that Pembrokeshire had 76.7% of its population aged 16-64 who were categorised as economically active between October 2019 and September 2020. This represented an increase from 70.6% at the start of the period. The current level of economic activity in Pembrokeshire is slightly higher than that in Wales (76.2%) and is higher compared to the other counties in south west Wales. Understanding why the labour market is not fully utilised is important when identifying the barriers that exist (and which therefore result in unemployment and inactivity).

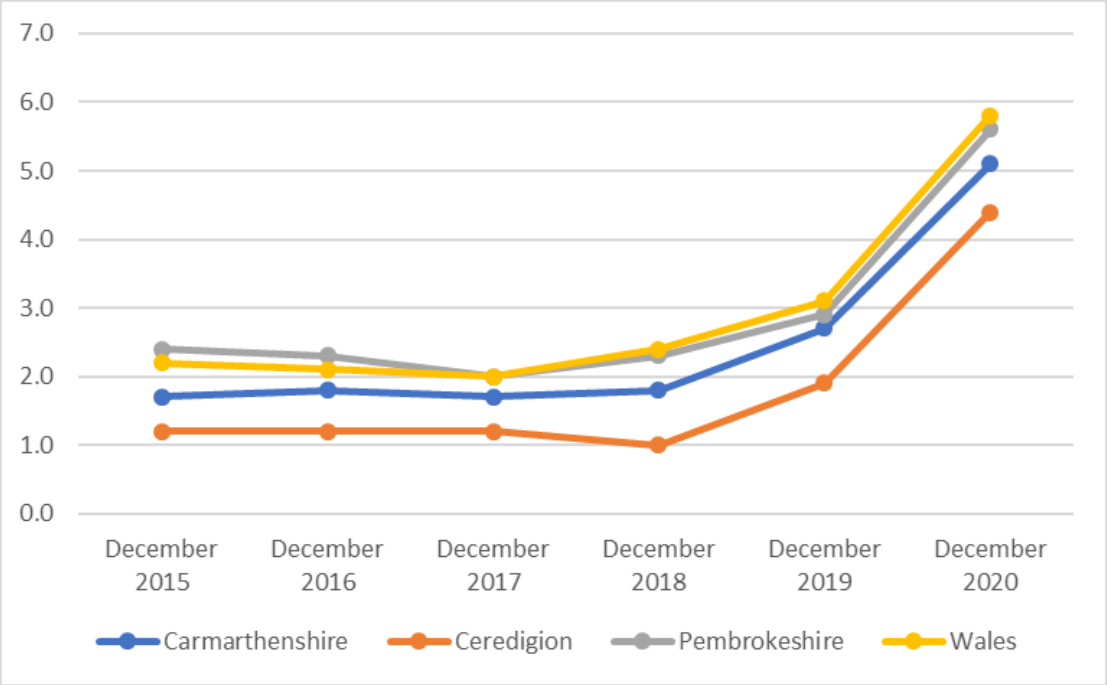
27.5.2.16 It should be noted, however, that the rate of economic activity cannot be 100% because of a variety of reasons, such as students who are not seeking employment and are in higher or further education. Other factors such as structural or long-term unemployment are also factors that need to be understood and addressed within the local labour market.

Unemployment rate

27.5.2.17 The unemployment rate measures the percentage of the working population (16-64) that are unemployed but actively seeking employment and willing to work. In terms of estimating unemployment, there are two ways in which it is measured:

- Firstly, the labour force survey measures unemployment by estimating the number of people without a job in the past four weeks and who can start working in the next two weeks as well as those who have found a job and are waiting to start in the next two weeks.
- Secondly, the Claimant Count simply estimates unemployment based on the number of people seeking unemployment benefits.

27.5.2.18 Analysing the Claimant Count across all age groups the local authorities in south west Wales generally have had lower unemployment than the Wales average in recent years.

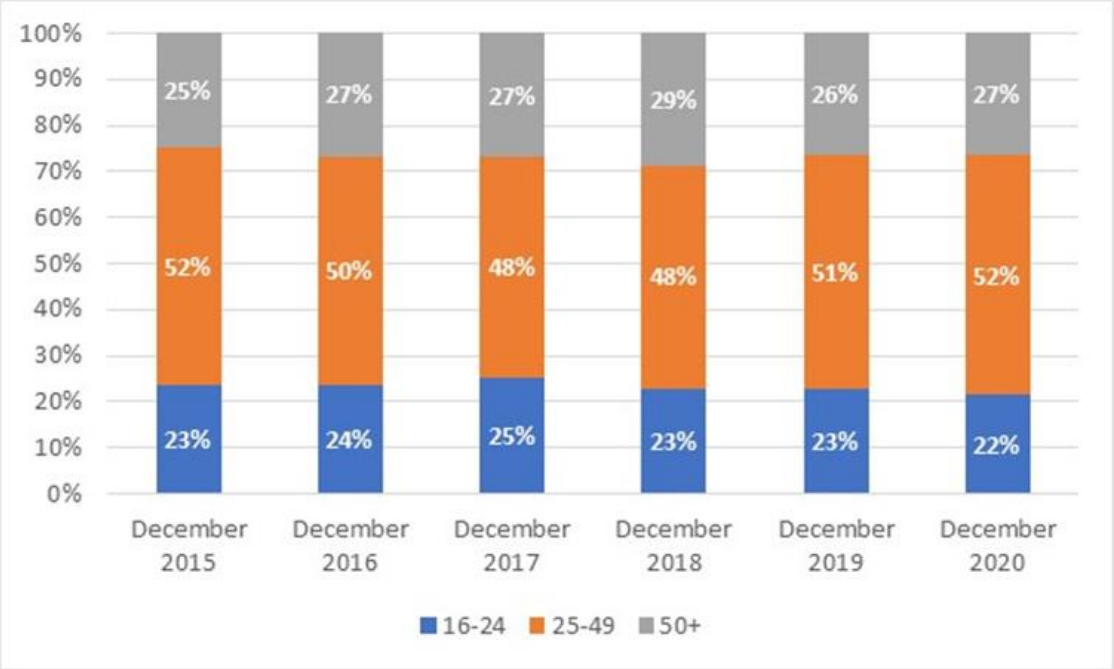


Graphic 27.7: Proportion of Working Population Unemployed by Claimant Count

Source: Office for National Statistics, Claimant Count, Feb 2021

27.5.2.19 Graphic 27.7 shows the unemployment rate as measured by the Claimant Count throughout the period 2015 to 2020. It shows that of the three local authorities, Ceredigion has experienced the lowest unemployment throughout the period whilst Pembrokeshire has had the highest unemployment throughout. Since December 2017, Pembrokeshire has seen a year-on-year increase in its unemployment rate with the level increasing by 2.7% between December 2019 and December 2020. As part of the COVID-19 recovery, it is important that jobs such as those in the Marine Energy sector are created in order to bring the level of unemployment lower than what it was before the pandemic.

27.5.2.20 Some age cohorts are likely to have been impacted more than others as a result of COVID-19, in particular the young and those at the beginning of their careers. Graphic 27.7 shows a breakdown of unemployment trends within the cohorts.



Graphic 27.8: Claimant Count in Pembrokeshire by age cohort

Source: Office for National Statistics, Claimant Count, Feb 2021 – numbers may not add up due to rounding

27.5.2.21 Graphic 27.8 shows the Claimant Count by age cohort has remained broadly similar in the 2015 to 2020 period. Those in the early stages of their careers accounted for 22% of the Pembrokeshire unemployment rate in 2020, slightly lower than that in 2025 whilst there was no change for the 25-49 category. This shows that the distribution of people being unemployed has not changed in the last five years (taking COVID-19 into account as well).

Qualifications

27.5.2.22 National Vocational Qualifications (NVQs) are designed to demonstrate a worker's level of occupational competence as shown in Table 27.12. To achieve an NVQ, a worker has to show they have the ability to undertake their job to a required standard.

Table 27.12 – Breakdown of NVQs

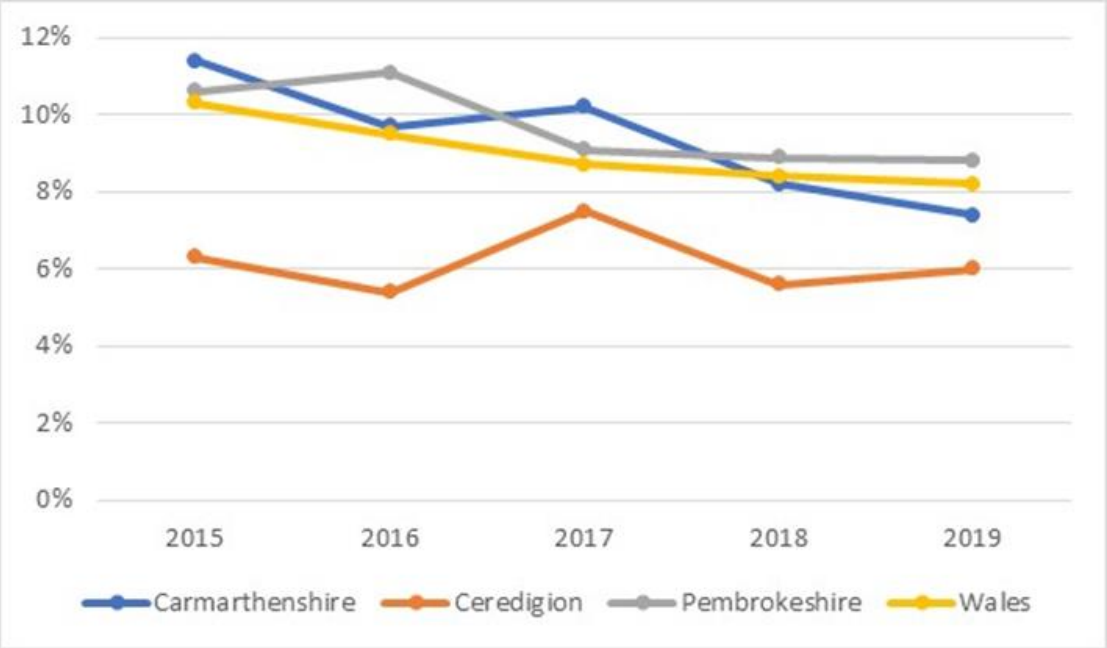
National Vocational Qualifications	
No Qualifications	E.g. No formal qualifications held
Other Qualifications	E.g. Includes foreign qualifications and some professional qualifications
NVQ1 Equivalent	E.g. Fewer than five GCSEs at grades A-C, foundation GNVQ, NVQ 1, intermediate one national qualification (Scotland) or equivalent
NVQ2 Equivalent	E.g. Five or more GCSEs at grades A-C, intermediate GNVQ, NVQ 2, intermediate two national qualifications (Scotland) or equivalent

National Vocational Qualifications	
NVQ3 Equivalent	E.g. Two or more A levels, advanced GNVQ, NVQ 3, two or more higher or advanced higher national qualifications (Scotland) or equivalent
NVQ4 Equivalent and above	E.g. Higher National Diploma, Degree and Higher Degree level qualifications or equivalent

27.5.2.23 To analyse the level of skills within a local labour market, the range of qualifications covered includes No qualification, NVQ2 as well as NVQ4 and above.

No Qualifications

27.5.2.24 Analysing the number of people of working age who have no qualifications is important when understanding the extent to which these workers are less likely to be in employment. The 2011 Census and recent Annual Population Survey data illustrates that fewer than half of those with "no qualifications" were in some form of employment compared to approximately 80% of people who had at least one qualification.



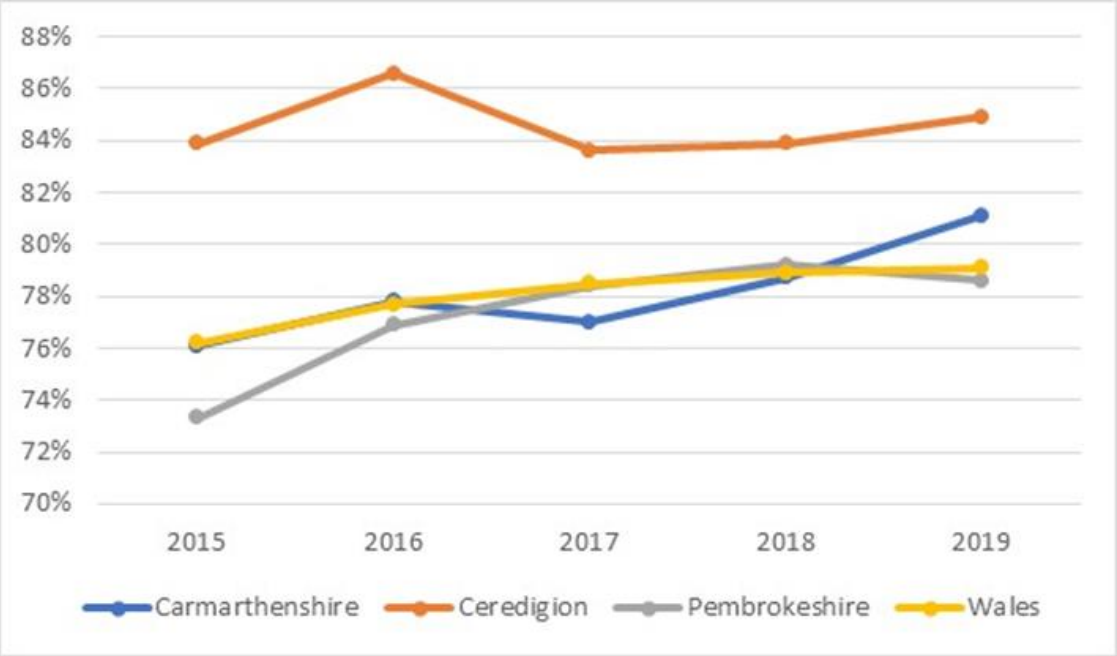
Graphic 27.9: Percentage of the Working Population with No Qualifications

Source: Stats Wales, Levels of highest qualifications held by working age adults by area and gender, April 2020

27.5.2.25 Graphic 27.9shows that the proportion of the working population with no qualifications has been decreasing since 2015. Whilst Pembrokeshire has seen a decline in the percentage of the working population with no qualifications, it is currently above all other areas in the region and the Wales average. In 2015, the proportion of workers with no qualifications in Pembrokeshire was 10.6% and this has subsequently fallen to 8.8% in 2019, a decrease of 1.8%.

NVQ2

27.5.2.26 Having NVQ2 level qualifications is a minimum requirement for most jobs, corresponding to the standard five GCSEs at grades A-C (generally English and Mathematics are required subjects). Graphic 27.10 compares the proportion of the working population with NVQ2 or above.



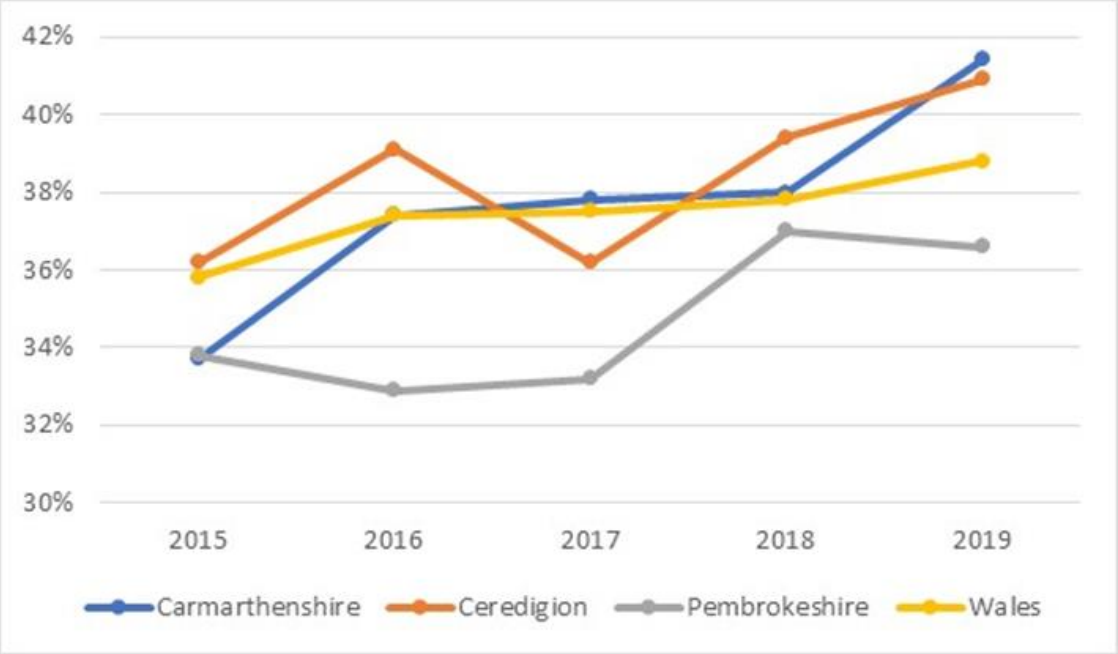
Graphic 27.10: Percentage of the Working Population with NVQ2 or Above

Source: Stats Wales, Levels of highest qualifications held by working age adults by area and gender, April 2020

27.5.2.27 Graphic 27.10 shows the working population with qualifications of NVQ2 level. Pembrokeshire has increased by 5.3%, the largest over the period. 78.6% of the working population had NVQ2 or above in 2019 and this has increased from 73.3% in 2015. Whilst the difference to the Wales average is smaller in 2019 compared to that in 2015, Pembrokeshire does not perform as well when compared with both Ceredigion and Carmarthenshire. The Wales, Ceredigion and Carmarthenshire proportions of working population in 2019 was 79.1%, 84.9% and 81.1% respectively. This demonstrates the need for provision of enhanced education and training to ensure that the working population have the necessary skills to perform various roles.

NVQ4

27.5.2.28 In the NVQ4 and above category, these are the workers who are able to undertake a range of work activities with a high degree of personal responsibility and autonomy. Those with higher levels of qualifications such as NVQ4 are more likely to be in higher-skilled jobs and delivering higher levels of output. Graphic 27.11 shows the comparison of the working population with NVQ4 or above.



Graphic 27.11: Percentage of the Working Population with NVQ4 or Above

Source: Stats Wales, Levels of highest qualifications held by working age adults by area and gender, April 2020

27.5.2.29 Pembrokeshire had the lowest proportion of those with NVQ4 qualifications or above in the geographical areas analysed. The proportion was 36.6% in 2019 and this was lower than the Wales average of 38.8% and the Carmarthenshire and Ceredigion averages of 41.4% and 40.9% respectively. This shows that the proportion of highly skilled workers in Pembrokeshire is lagging behind the proportion in Wales. The Project will provide the opportunity to increase the number of skilled workers in all parts of the supply chain in NVQ4 occupations.

Indices of deprivation

27.5.2.30 The Index of Multiple Deprivation 2019 (IMD) is the official measure of relative deprivation in Wales published by the Welsh Government. It ranks all small areas as denoted by Lower Layer Super Output Areas (LSOAs) from 1st (most deprived) to 1,909th (least deprived) on eight distinct domains. Each of the LSOAs have on average a population of 1,600 people. The following are the domains with their respective weighting in brackets are shown in Table 27.13.

Table 27.13 – Lower Layer Super Output Areas

Lower Layer Super Output Areas	Weighting in brackets
Income	22
Employment	22
Health	15
Education	14
Access to Services	10

Lower Layer Super Output Areas	Weighting in brackets
Housing	7
Community Safety	5
Physical Environment	5

27.5.2.31 Please note the criteria and the weightings are not consistent across the United Kingdom.

Table 27.14 – Indices of Multiple Deprivation in Wales

Local Authority	Number of LSOAs in local authority	% of LSOAs in most deprived 10%	% of LSOAs in most deprived 20%
Ceredigion	79	2.2%	4.3%
Pembrokeshire	71	5.6%	11.3%
Carmarthenshire	112	4.5%	10.7%
Wales	9	10%	20%

Source: Welsh Government, Table 3, Indices of Multiple Deprivation: 2019, October 2020

27.5.2.32 The IMD data shows that whilst Pembrokeshire and the wider South west of Wales have pockets of deprivation, they perform better relative to other areas in Wales. Pembrokeshire had 5.6% of its LSOAs in the bottom 10% of deprived areas across Wales whilst 11.3% were in the 20% most deprived areas in Wales. By providing highly skilled jobs and by investing in Pembrokeshire, this will improve both the employment and income domains which could help to reduce the level of deprivation relative to other areas in Wales.

Demand-Side Analysis

27.5.2.33 The desktop review has investigated the 'demand side' characteristics relating to Pembrokeshire, South west Wales and Wales. The structure of the desktop review is as follows:

- Employment:
  - Employment by Broad Industry;
  - Growth sectors; and
  - Employment by Occupation.
- Earnings:
  - Gross Median Weekly Earnings (Residence);
  - Gross Median Weekly Earnings (Workforce); and
  - Comparison of residence and workforce earnings.
- Summary of Economic Impacts Assessment.

Employment

Employment by Broad Industry

27.5.2.34 Employment refers to where people are engaged in paid work in the reference week (self-employed or an employee), those who had a job that they were temporarily away from (e.g. on holiday), those on government-supported training / employment programmes and those undertaking unpaid family work.

27.5.2.35 Table 27.15 below provides a breakdown of the top eight employment sectors in Pembrokeshire in 2019. For comparison purposes, the table also presents the respective proportions for each sector across Wales.

Table 27.15 – Key Employment Sectors 2019

Sector	Pembrokeshire Employment in 2019	Pembrokeshire % of Total Jobs	Wales % of Total Jobs
Accommodation & Food Services	9,000	18.1	9.3
Health	7,000	14.1	15.1
Retail	5,500	11.1	9.5
Education	3,500	7.0	8.6
Public Administration & Defence	2,750	5.5	7.2
Manufacturing	2,750	5.5	10.7
Construction	2,750	5.5	4.9
Arts, Entertainment, Recreation & Other Services	2,375	4.8	3.6
Total	**35,625**	**71.6**	**65.3**

Source: Office for National Statistics, Business Register and Employment Survey, November 2020

27.5.2.36 Table 27.16 shows the breakdown of the most important sectors in Pembrokeshire, with the top five sectors accounting for 27,250 jobs (or 55.8%) of all jobs in the county. The Accommodation and Food Services sector was the largest in Pembrokeshire in 2019 and accounted for 9,000 out of 49,750 jobs, which is 18.1% of all jobs in the county. This can be attributed to the area's strong reliance on tourism and industries related to this sector. Health provides significant levels of employment across the majority of councils in Wales as well as in Great Britain. It was the second largest employer in Pembrokeshire, accounting for approximately 7,000 jobs (14.1%), slightly less than that recorded in Wales (15.1%).

27.5.2.37 Comparing the sectoral breakdown of employment in Pembrokeshire with that in Wales also provides an insight into the relative performance of both high and low-skilled jobs. Health is the largest employment sector in Wales, followed by manufacturing, retail and accommodation and food services. This suggests that Pembrokeshire's employment sectors fall largely in line with national patterns although the district has a significantly higher reliance on accommodation and food services than the national average.

Growth Sectors

27.5.2.38 Pembrokeshire has seen a minimal decrease in the total number of jobs since 2015. The total number of jobs in the county was 50,350 in 2015, for example, compared to 49,750 in 2019 (a decrease of 600 jobs over this period).

27.5.2.39 The table below shows the associated growth rate within each industry between 2015 and 2019.

Table 27.16 – Pembrokeshire Sectors of Growth, 2015 vs 2019

	Employment in 2015	Employment in 2019	+/-
Accommodation & Food Services	6,500	9,000	2,500
Public Administration & Defence	2,125	2,750	625
Wholesale	1,125	1,750	625
Motor Trades	1,000	1,250	250
Information & Communication	250	500	250
Business Administration & Support Services	1,500	2,000	500
Professional, Scientific and Technical	2,000	1,750	-250
Total	**50,350**	**49,750**	**-600**

Source: Office for National Statistics, Business Register and Employment Survey, November 2019

27.5.2.40 Significant proportions of employment in Pembrokeshire have continued be in comparatively low-skilled sectors such as accommodation and food services, wholesale, motor trade and business administration and support services. In 2015, for example, accommodation and food services employed 6,500 people and this increased to 9,000 in 2019 (an increase of 2,500 or a CAGR, of 6.7% or absolute growth rate of 38.5%). Employment in the information and communications sector has doubled from 250 employees in 2015 to 500 employees in 2019. This demonstrates that there has been some increase in high skilled jobs in the area. Professional, scientific and technical jobs have decreased since 2015 (-250 jobs).

27.5.2.41 The above data and trends suggest that the Project, with its emphasis on highly skilled, technical jobs, will create a significant opportunity to address the decline in the professional, scientific and technical sector that has been observed over the last four years.

Employment by Occupation

27.5.2.42 Employment by occupation data shows what types of roles are available in the local labour market as well as the extent of skills and training levels currently required. Those in senior/managerial roles will have obtained higher levels of qualifications and training compared to those working in manufacturing or sales roles. Table 27.17 compares Pembrokeshire's employment by occupation against the Wales average.

Table 27.17 – Pembrokeshire Employment by Occupation

Occupation	Pembrokeshire Employment	Pembrokeshire (2019) percentage of jobs	Wales (2019) percentage of jobs
Managers, directors and senior officials	5,600	9.8%	9.5%
Professional occupations	8,800	15.6%	19.3%
Associate prof & tech occupations	6,000	10.6%	13.7%
Administrative and secretarial occupations	4,400	7.8%	9.5%
Skilled trades occupations	11,100	19.6%	12%
Caring, leisure and other service occupations	6,900	12.2%	10.4%
Sales and customer service occupations	3,800	6.7%	7.8%
Process, plant and machine operatives	3,100	5.4%	6.6%
Elementary occupation	6,700	11.9%	10.9%

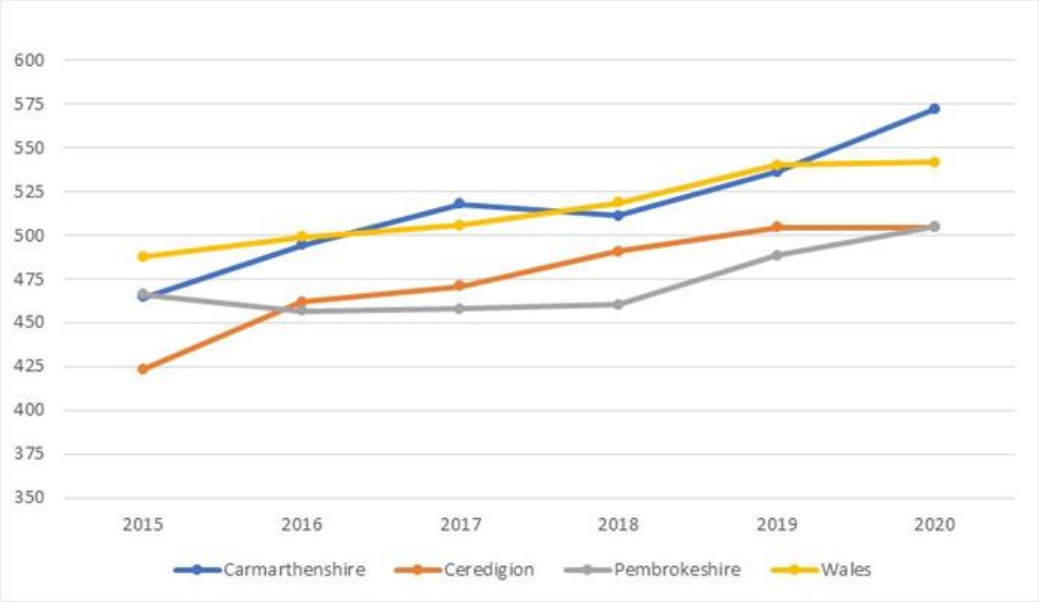
Source: Annual Population Survey, Employment by occupation, January 2021

27.5.2.43 Table 27.17 shows that whilst Pembrokeshire has a slightly higher proportion of managers, directors and senior officials and elementary occupations, the area is not well represented in professional occupations, associate professional and technical occupations compared to the national average. These three sectors account for 36.0% of all types of occupations compared to 42.5% for Wales. One area that Pembrokeshire does have a comparative advantage in is Skill trades occupations with 19.6% of the workforce in this category occupation compared to 12% across Wales. This shows that Skill trades occupations are 1.6 times more important to the Pembrokeshire labour market relative to the labour market in Wales.

Earnings

27.5.2.44 Median Gross Weekly Earnings are an indication of the income of an area compared against the county, regionally and nationally. This is calculated based on two different methodologies:

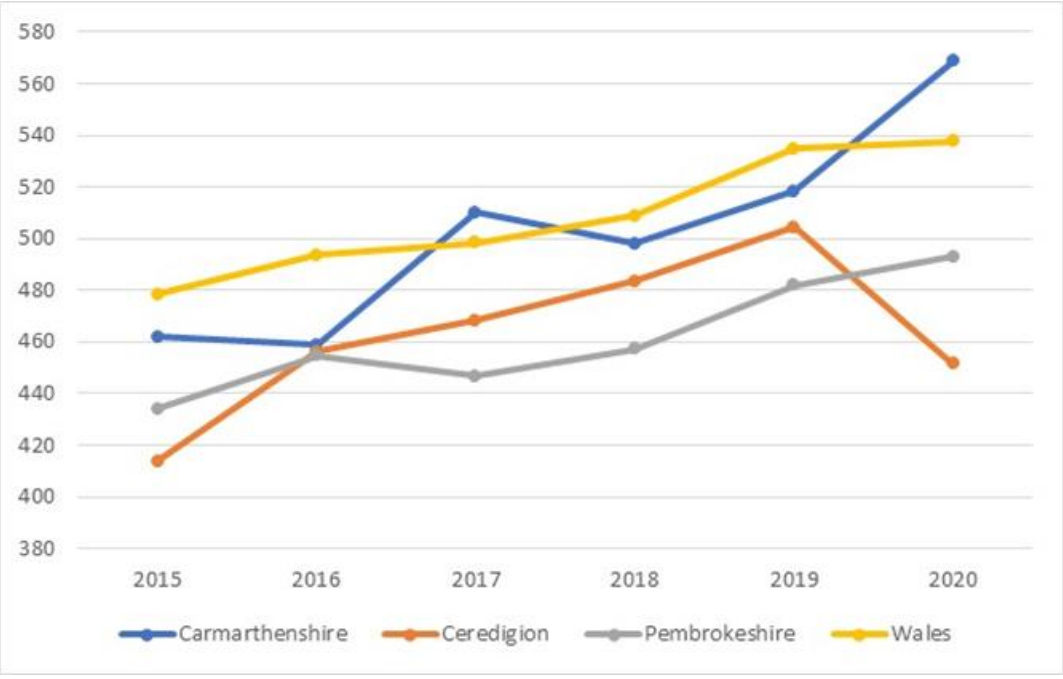
- Wages of those who live in the area (residence); and
- Wages of those who work in the area (workforce).



Graphic 27.12: Median Gross Weekly Earnings (Residence) for a Full-Time Worker

Source: Annual survey of hours and earnings – resident analysis, Feb 2021

Pembrokeshire has lower median gross weekly earnings (resident) than that of the Wales average in 2020. Weekly earnings were £504.80 compared to the Wales average of £541.70, approximately 7.3% lower. In terms of earnings growth, the absolute growth in wages has been lower for Pembrokeshire compared to all geographical areas analysed for the period 2015 to 2020. Ceredigion earnings grew the largest by £80.90 per week compared to only £38.60 in Pembrokeshire. This is significantly lower than the £54.10 and £107.30 growth for Wales and Carmarthenshire respectively over the same period.



Graphic 27.13: Median Gross Weekly Earnings (Workforce) for a Full-Time Worker

Source: Annual survey of hours and earnings – workforce analysis, Feb 2021

27.5.2.45 Pembrokeshire has lower median gross weekly earnings (workforce) compared to the Wales average. In 2020, weekly earnings were £492.90 compared to the Wales average of £537.80, approximately 9.1% lower. In terms of earnings growth, the absolute growth in wages has been lower for Pembrokeshire compared to other geographical areas analysed for the period 2015 to 2020. Ceredigion earnings grew the least by £37.50 per week compared to £58.70 in Pembrokeshire. This is similar to that of the Wales average of £59.20 but significantly lower than the £106.70 growth for Carmarthenshire over the same period.

Socio-economic Receptors and Receptor Sensitivity

27.5.2.46 Based on the information set out within the socio-economic baseline, the following receptors have been identified with associated sensitivities. These are set out in Table 27.18 below.

Table 27.18 – Socio-Economic Receptor Sensitivities

Receptor	Potential Impact	Geographical Impact Area	Sensitivity of Receptor
Construction Phase			
Regional Labour Market	Employment generation during construction	South west Wales	Low
Local Labour Market	Employment generation during construction / Employment and training opportunities	Pembrokeshire	Medium
Local Businesses	Local expenditure during construction	Pembrokeshire	Low
Gross Value Added (GVA)	Employment generation during construction	All Impact Areas	Low
Operational Phase			
Regional Labour Market	Employment generation following completion and operation of the Project	South west Wales	Low
Local Labour Market	Employment generation following completion and operation of the Project / Employment and training opportunities	Pembrokeshire	Medium
GVA	Employment generation during operation	All Impact Areas	High
Indices of Deprivation	Employment generation during operation / Employment and training opportunities	Pembrokeshire	Low

Receptor	Potential Impact	Geographical Impact Area	Sensitivity of Receptor
Decommissioning Phase			
As per construction phase	-	-	-

27.5.3 Human Health

General Health

27.5.3.1 There is currently limited information on the human health baseline environment within the proposed Study Area. A summary of health provision and health issues is provided below.

27.5.3.2 Within the proposed Study Area health provisions include 15 GP practices and 29 pharmacies. The County's only general hospital is Withybush Hospital in Haverfordwest; there are two community hospitals in Pembroke Dock and Tenby.

27.5.3.3 Data from the 2011 census shows 22.3% of the population of the County have a long-term illness, which equates to 25,477 people and covers any long-term illness, health problem or disability that limits daily activities or work (ONS, 2001; Welsh Health Survey, 2015).

27.5.3.4 The primary health issues in the County are considered to be obesity, 63% of the adult population in the County are considered to be obese; and an aging population, Pembrokeshire has a higher percentage of 65+ year old residents than the rest of the UK (WAG, 2016).

27.5.3.5 As part of the personal well-being in the UK: April 2019 to March 2020 Study, average ratings of life satisfaction, happiness and anxiety, in the UK, all deteriorated between 1 and 6% when compared to 2019. Well-being showed a large decrease from 2019 levels in Wales. A summary of the results includes:

- Clinically significant psychological distress was found in around 50% of the population (men = 47.4%, women = 58.6%), with around 20% showing "severe" effects (men = 17.0%, women = 20.9%): a 3–4-fold increase in prevalence; and
- Most affected were young people, women, and those in deprived areas.

27.5.3.6 The Public Health Wales public engagement survey reported that only 50% of people rated their current happiness level as high (ratings of 7 to 10 on a scale of 0 to 10) in early November 2020, down from 67% in early May 2020.

27.5.3.7 Given the general health of the population, the percentage age profiles, current unemployment rate and measure of deprivation in Pembrokeshire, the sensitivity of the population is considered to be Medium.

27.6 Potential Environmental Effects

27.6.1.1 The following assessment provides a summary of all impacts identified during Scoping, and those which have been noted as the EIA has progressed. Each impact is not necessarily relevant to all stages of the Project, and thus impacts have been assessed within the stage of the Project at which they will occur (construction, operation and maintenance, and decommissioning). Further information on the EIA process and methodology is outlined in Section 27.4 and Chapter 2: EIA Methodology.

27.6.1.2 The impacts have been assessed on the current baseline, which could change over the operational life of the Project. The receptors have been identified through review of data and feedback from consultation.

27.6.1.3 The worst-case parameters assumed for each individual potential impact on Tourism and Recreation, Socio-economic and Human Health are detailed below in Table 27.19. Further information on the PDE is described in Section 27.4.2 and Chapter 4: Proposed Development Description.

Table 27.19 - Project Design Envelope Parameters Relevant to Tourism and Recreation Socio-economics and Human Health

Potential Pathway Change / Impact	Realistic Worst-Case Scenario	Justification
Construction		
Tourism and Recreation		
Disruption/reduced access for coastal tourism. Disruption/ reduced access to local businesses. Disruption/reduced access for terrestrial recreational users. Disruption/reduced access for coastal recreational users.	The offshore construction duration is expected to last a maximum of eight months comprising the following construction milestones: • Offshore installation = 60 days • Offshore Array Cable installation = 40 days • Offshore export cable installation = 49 days The onshore construction is expected to last a maximum of 18 months. Length of onshore export cable 14.5 km, 60 m onshore corridor width. Open cut trenching is assumed in relation to disruption (West Angle Bay will be partially closed), whereas longer programme (21 weeks) is assumed in relation to HDD at landfall. The realistic worst case would be Open Cut Trenching (OCT) and for the work to be done in the winter (installation of the	This scenario represents maximum spatial and temporal disturbances to users and would result in a temporary displacement of access in the area, including during the summer months. HDD is not yet confirmed as technical feasible, as such open cut trenching is included in PDE as alternative.

Potential Pathway Change / Impact	Realistic Worst-Case Scenario	Justification
	duct) with only the cable pull potentially being undertaken during the summer. The cable pull is dependent on a period of suitably calm weather and to coincide with construction programme, aligning onshore and offshore operations. The realistic worst case would necessitate the closure of the car park and beach for 16 weeks in autumn/winter with the closure of the beach for an additional 2-3 weeks for the cable pull potentially falling during the summer months.	
Disruption to Recreational Vessel Activity	The offshore construction duration is expected to last a maximum of eight months. During construction phase, temporary 500 m Safety Zones will be imposed around all major construction vessels. Maximum vessel numbers at any given time is 4. There will be regular passage of vessels between the port of Pembroke and the offshore array area. During installation of the export cable there will also be a Cable Lay Vessel (CLV) moving along the cable route plus supporting vessels.	This scenario represents maximum spatial and temporal disturbances to users and would result in a temporary displacement of access in the marine area.
Socio-economic		
Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities	CAPEX Costs	This provides the most realistic estimate, increase may artificially inflate economic benefit.

Potential Pathway Change / Impact	Realistic Worst-Case Scenario	Justification
Increase in professional roles and training opportunities	N/A	There is no applicable worst-case scenario.
Gross Value Added (GVA) impacts including increased productivity, increased revenue opportunities and economic benefit, reducing Welsh Index of Multiple Deprivation	CAPEX Costs	This provides the most realistic estimate, increase may artificially inflate economic benefit.
Human Health		
Health effects from direct economic benefits/employment	Refer to socio-economics above.	
Operation and Maintenance		
Tourism and Recreation		
Disruption to Recreational Vessel Activity and Chartered Boat Tours	WTG units services on an annual basis. Duration of servicing activities will be up to 240 hours per year (20 days). Minor maintenance maximum seven vessels a year. Major Maintenance maximum three vessels a year. Mooring line replacement maximum two vessels a year. Number of export cable repairs over lifetime = 5. Number of export cable remediation events over lifetime = 12	This scenario represents maximum spatial and temporal disturbances to users.
Disruption/ reduced access to local businesses	Number of export cable repairs over lifetime = 5. Number of export cable remediation events over lifetime = 12 Minimum two persons working on site at all times at	This scenario represents maximum spatial and temporal disturbances to users.

Potential Pathway Change / Impact	Realistic Worst-Case Scenario	Justification
	substation (seven days a week, 24 hours a day). Maintenance of substation will increase as substation ages.	
Socioeconomic		
Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities	OPEX Costs	This provides the most realistic estimate, increase may artificially inflate economic benefit.
Increase in professional roles and training opportunities	N/A	There is no applicable worst-case scenario
Gross Value Added (GVA) impacts including increased productivity, increased revenue opportunities and economic benefit, reducing Welsh Index of Multiple Deprivation	OPEX Costs	This provides the most realistic estimate, increase may artificially inflate economic benefit.
Use of green energy, creation of cluster effects and energy security.	N/A	There is no applicable worst-case scenario
Human Health		
Electromagnetic field impacts	Technical Appendix 7.2: EMF Compliance Assessment, power from up to 6 x 18MW turbines.	Use of maximum current. Requires legislative and industry standards.
Well-being of Future Generations Goals associated with green energy	N/A	There is no applicable worst-case scenario

Potential Pathway Change / Impact	Realistic Worst-Case Scenario	Justification
Decommissioning		
All Impacts	The decommissioning process will largely be the reverse of that undertaken during the construction. It is expected that the WTG, platforms and mooring will be completely removed and returned to port for disassembly, re-use or disposal and the offshore export cable will be removed. The onshore cable will remain in situ and the substation will be dismantled. DECEX Costs.	Decommissioning works will be very similar or of reduced magnitude to construction activities. It is realistic to assume that the cable will remain in situ onshore.

27.6.2 Construction – Tourism and Recreation

Disruption / reduced access for coastal tourism

Coastal Tourism

27.6.2.1 Changes to access and amenity on the Angle Peninsula and other sources of disruption caused during the construction phase, such as increase in noise, air quality and visual impacts can affect the amenity value for users of the Pembrokeshire Coast National Park.

27.6.2.2 There are a number of attractions and events (particularly during the summer season (April – October) which would increase visitor numbers in the County and within 5 km of the Proposed Development, including local festivals and sporting events and disruption to traffic flows, noise, air quality and landscape can all have a potential negative impact on amenity for receptors.

27.6.2.3 The Transport Assessment (Chapter 25: Traffic and Transport) concludes that there will be no increase in vehicle flows and therefore traffic will have a minimal impact on the operation of the local road network. Therefore, impacts to access of the B4320 on the Angle Peninsula which could affect local access for tourists to the Angle Peninsula, through congestion and delays are considered to be insignificant.

27.6.2.4 The Noise Assessment (Chapter 22: Onshore Noise and Vibration) concludes that there would be no significant impacts on users in terms of noise and vibration during the construction phase on the basis works are in accordance with mitigation proposed in the CEMP.

27.6.2.5 The Air Quality Assessment (Chapter 26: Air Quality) concludes that there would be no significant effects during the construction phase on the basis works are in accordance with mitigation proposed in the CEMP.

27.6.2.6 As noted in Chapter 21: Landscape and Visual Impact, the construction impacts on landscapes including the Angle Peninsula would be significant and this may impact the amenity of the area.

27.6.2.7 Effects on the landscape during construction would be mitigated as far as possible through measures identified within the CEMP and Landscape Environmental Management Plan (LEMP). Post-consent, the final detailed design of the Project and the development of the LEMP in combination with the CEMP will seek to stipulate measures to avoid, reduce or offset environmental effects of the construction works, including those related to landscape and visual amenity.

27.6.2.8 The mitigation strategy and approach agreed in principle with consultees includes the following key aspects:

- Proposed woodland to the south of the onshore substation to help mitigate visual effects from Goldborough Road and nearby properties to the south;
- Proposed woodland to the east of the onshore substation to help mitigate visual effects from the east in particular from Pennar to the north east;
- Proposed native species hedgerows along the minor road to Lambeeth to complement existing hedgerows which along with additional woodlands along this edge would help to mitigate views of the onshore substation from the minor road to Lambeeth; and
- Complimentary building materials and finish for the substation that are consistent with large scale agricultural buildings and in line with the Greenlink proposals.

27.6.2.9 It is not considered likely that disruption and reduced access will increase to such a degree that it discourages people from visiting the Pembrokeshire Coast National Park (i.e. will not reduce visitor numbers) or affect tourism in and around Pembrokeshire, including specific events or attractions. However, there will be some temporary reduced amenity to local users on the Angle Peninsula for the duration of the construction phase.

27.6.2.10 The majority of the tourist attractions listed in Section 27.5 are not within the footprint of the landfall or onshore export cable corridor, and therefore will not be directly impacted during the construction works. However, a number of tourism receptors are affected:

- Chapel Bay Fort Museum is located 500 m northeast of the onshore export cable corridor and is accessed only via the B4320;
- West Angle Beach is affected by landfall and the onshore export cable corridor and is discussed further below: and
- Visitors to Freshwater West Beach will be affected by disruption to access via the B4320, discussed below.

27.6.2.11 The onshore export cable corridor will cross the B4320 at the B4319 junction, and therefore it is anticipated that there may be indirect impacts to the Chapel Bay Fort Museum. These impacts will be associated with construction works (HDD), and construction traffic (including Heavy Goods Vehicles (HGVs) and employee vehicles) on the road network. With lane closures in place, this may contribute to an increase in congestion which may lead to delays and therefore indirectly impact the users accessing these locations and/or attractions.

27.6.2.12 However, as stated in Chapter 25: Traffic and Transport driver delay is anticipated to be minimal. These effects would be reduced as far as possible by the measures set out in the Construction Traffic Management Plan (CTMP) (Volume 3, Technical Appendix: 25.2) which will ensure that the construction activities will not have a detrimental impact on the safe operation of the local highway network.

27.6.2.13 The plan will also include the formation of new temporary access and indicative layout of traffic management measures, along with the implementation of a compressive signage strategy in the vicinity of the sites.

27.6.2.14 The key receptors, namely users of the Pembrokeshire Coast National Park and other tourist attractions, were assessed as being of medium sensitivity. The magnitude of impact is assessed as low, to reflect the localised and short-term nature of changes. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

27.6.2.15 Further impacts to businesses and beaches within the Pembrokeshire Coast National Park and reduced access to the Wales Coast Path and Pembrokeshire Coast National Park are discussed below.

Additional Mitigation and Residual Effect

27.6.2.16 None of effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Disruption/ reduced access to local businesses

Effects on Businesses

27.6.2.17 The construction of the Project is not anticipated to have any direct effects on the identified businesses listed in Section 27.5 as these are not situated within the footprint of the onshore export cable corridor and are considered further below.

27.6.2.18 There are two businesses which are located adjacent to the onshore cable corridor comprising the Café at West Angle Bay (Wavecrest Café) and West Angle Caravan Park.

27.6.2.19 There is potential for indirect impacts to occur during the construction. These include:

- Disruption to direct vehicular and pedestrian access, including congestion; and
- Noise, dust and visual annoyance.

27.6.2.20 Potential impacts to Chartered Boat Tours and the operation of their businesses during construction are discussed alongside impacts on recreational vessels in Section 27.6.2.51.

Café at West Angle Bay

27.6.2.21 The Café at West Angle Bay (Wavecrest Café) is in operation for most of the year and is only closed in January. The location of the closest temporary landfall compound will be located within the arable field, adjacent to the car park at West Angle Bay. Access will be maintained where possible, with a full closure considered as worst case.

27.6.2.22 There will be indirect impacts including disruption to direct vehicular and pedestrian access, congestion and noise, dust and visual annoyance associated with construction activities in close proximity to the café. This may affect enjoyment by users; however, the café is the only business of this nature on the beach and access will be maintained where possible, with a full closure considered as worst case.

27.6.2.23 The sensitivity of this specific receptor, namely the café at West Angle Bay (Wavecrest Café) was assessed as high, this is due to the business owners concerns to the direct operation of their business during the construction and maintenance of the Project which were highlighted during the Stakeholder Engagement Consultation.

27.6.2.24 The magnitude of impact is considered to be low. This results in a **moderate adverse** effect, which is significant in EIA terms.

West Angle Caravan Park

27.6.2.25 Occupants of the Caravan Park at West Angle Bay are likely to experience a combination of Project impacts, specifically the increased levels of noise and dust. There may also be some reduced amenity for the caravan park on the sea front in relation to the construction works and the onshore export cable installation. Access will be maintained where possible, with a full closure considered as worst case.

27.6.2.26 The Caravan Park is assessed as having a high sensitivity as a receptor, due to the Park containing static caravans which are used all year round by the owners. The magnitude of impact is assessed as being low given the short-term reversible nature of indirect effects. Therefore, the effect is judged to be **moderate adverse**, which is significant in EIA terms.

Castle Farm and Newton Farm Campsites and Caravan Park

27.6.2.27 Castle Farm Campsite and Newton Farm Campsite and Caravan Park are located approximately 1 km north, and 0.5 km south of the onshore export cable corridor, respectively. The businesses are not anticipated to be affected by direct effects from the construction phase, however, there may be some temporary indirect impacts relating to noise, air quality and visual impacts associated with the construction activities and disruption to vehicular access.

27.6.2.28 The sensitivity of these businesses was assessed as high, and magnitude of impact considered to be negligible. Therefore, the effect is judged to be **minor adverse**, which is not significant in EIA terms.

Café Mor and Pembrokeshire Surf Club Outer Reef School

27.6.2.29 Café Mor and the Pembrokeshire Surf Club Outer Reef School are located 2 km south of the onshore export cable corridor and do not operate from West Angle Bay. Due to their distance from the onshore export cable corridor no direct or indirect effects are anticipated. Neither business is considered further.

Additional Mitigation and Residual Effect

27.6.2.30 Due to the predicted moderate adverse (significant) effect on the Café at West Angle Bay (Wavecrest Café) and West Angle Caravan park in terms of the level of disturbance, additional mitigation will be applied to address these impacts.

27.6.2.31 In addition to the standard mitigation, which include proposed mitigation outlined within the CEMP it is proposed that the following measures are implemented:

- Site-specific solutions such as temporary screening and noise barriers will be applied around the main items of noise generating activities; and
- Communication Strategy and a Bi-lingual Community Liaison Officer will be employed to inform businesses and residents of the construction schedule and programme and location of construction activities.

27.6.2.32 With successful implementation of both standard and additional mitigation measures, it is predicted that the residual impact will be reduced to **minor adverse**, which is not significant in EIA terms.

Disruption/reduced access for terrestrial recreational users

27.6.2.33 The Wales Coast Path follows the coast around West Angle Bay and will be intersected by the onshore export cable corridor, requiring temporary closure and a diversion during the installation of the onshore export cable. At this stage, it is not known how long the closure and diversion are estimated to be, however, given the sensitivity and importance of this asset for tourism use, throughout the duration of the construction phase of the Proposed Development access to the Wales Coastal Path will be maintained at all times, ensuring a safe restricted area is established around the works area only.

27.6.2.34 The diversion required would be appropriately signposted, and the relevant notice given to Pembrokeshire County Council and Pembrokeshire Coast National Park Authority in order to keep disruption to a minimum. No other PRoW will be intersected by the onshore export cable corridor; therefore, it is not anticipated that the total closure of any PRoW will be required to facilitate the works.

27.6.2.35 The onshore construction is expected to last a maximum of 18 months, therefore, other PRoW in the area (Volume 2, Figure 27.1) would only experience indirect amenity effects during construction which would be predominately temporary noise and visual impacts and given the linear nature of the Project any impacts would be temporary and short term.

27.6.2.36 The sensitivity of the Wales Coast Path was assessed to be high, but the magnitude of the impact is assessed to be negligible, given the small and temporary nature of the diversion. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

27.6.2.37 The sensitivity of other PRoWs in the Study Area was assessed to be medium and the magnitude of the impact was also assessed as negligible due to the temporary and indirect nature of effects on amenity. Therefore, a **negligible** effect on these other PrOW is predicted, which is not significant in EIA terms.

27.6.2.38 The B4319 and B4320 are used by cyclists who may be affected by the construction phase of the onshore export cable corridor. Single lane closures will be managed by a Traffic Management Plan, therefore causing temporary disruption to cyclists. Access will be maintained where possible, with a full closure considered as worst case. Provisions will be made during the construction phase to ensure that cyclists (and pedestrians) can pass in a safe manner. Haul roads will be used for movement of construction vehicles, meaning that cyclists will not be affected by construction traffic on narrow roads.

27.6.2.39 The sensitivity of cyclists was assessed to be medium and the magnitude of the impact assessed as low due to temporary and minor change to access. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

27.6.2.40 The Wales Coastal Path and Pembrokeshire Coast National Park are also widely used for wildlife watching and users would have reduced access, as a result of the closure and diversion of the Wales Coast Path and temporary disruption to road access, during the construction phase.

27.6.2.41 The sensitivity of wildlife watchers was assessed to be medium and the magnitude of the impact assessed to be low due to temporary and minor change to access. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.2.42 None of effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Disruption/reduced access for coastal recreational users

27.6.2.43 West Angle Bay will be directly impacted during the installation of the onshore export cable. The preferred option is HDD however, as a contingency open cut trenching has been included in the PDE. Both options have the potential to affect beach users and activities including swimming, rowing, wind surfing, kayaking, canoeing, SUP and surfing.

27.6.2.44 The realistic worst case for landfall would be open cut trenching and for the work to be undertaken during the winter (installation of the duct) with only the cable pull potentially being undertaken during the summer. The cable pull is dependent on a period of suitably calm weather and to coincide with construction programme, aligning onshore and offshore operations. The realistic worst case would necessitate the closure of the car park and beach for 16 weeks in autumn/winter with the closure of the beach for an additional 2-3 weeks for the cable pull potentially falling during the summer months.

27.6.2.45 Other forms of disruption for coastal users at West Angle Bay and around the Angle Peninsula include reduced road access and reduced amenity due to construction activities (visual intrusion and noise). However, as stated in Section 25.7.4 of Chapter 25: Traffic and Transportation, the Project is expected to have a negligible impact on the operation of the adjacent highway network and the majority of junctions on the construction route will provide priority for the majority of traffic accessing the onshore substation and onshore export cable installation sites therefore having a negligible effect on driver delays.

27.6.2.46 The sensitivity of coastal users was assessed as medium and the magnitude of the impact for users of West Angle Bay is considered to be low due to part of the beach being temporarily inaccessible during landfall works. However, this will be a short to medium-term, reversible change.

27.6.2.47 Therefore, the effect on coastal recreational users is considered to be a **minor adverse** effect, which is not significant in EIA terms.

27.6.2.48 Other coastal users involved in water activities near the shore such as SUP, swimming, surfing, windsurfing, kayaking, snorkelling are assessed as being of medium sensitivity. The magnitude of the impact is assessed as being low as changes are limited to short-term. The effect is assessed as **minor adverse**, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.2.49 None of the other effects identified above for coastal recreation users (SUP, swimming, surfing) are major or moderate adverse (significant in EIA terms) Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Disruption to Recreational Vessel Activity and Chartered Boat Tours

27.6.2.50 Boat-based recreational fishing, yachting and motor cruiser activity occurs at low levels in the wider Study Area and activity is focused in specific locations such as Turbot Bank, offshore reefs and within the Celtic Deep. There are also a number of chartered boat tours which operate within the Study Area.

27.6.2.51 Recreational vessels and Chartered Boat Tours will experience similar impacts to those listed assessed within Chapter 16: Shipping and Navigation.

27.6.2.52 These users are likely to experience:

- Obstruction / alteration and collision risks to regular recreational routes via construction activity due to Safety Zones associated with construction vessels (including offshore export cable installation) which may impact users whilst drifting (a technique that allows a boat to move freely with the water, with no specific route just dependent on the wind and tides);
- Displacement of vessels (short term or temporary) due to Safety Zones during construction phase;
- Reduced access to preferred angling marks / impacts on target species; and
- Contact between vessels and semi-submersible floating platforms/WTGs and construction vessels through human error, steering failure, or whilst drifting through loss of power.

27.6.2.53 The risk of contact between a vessel and the semi-submersible floating platforms/WTGs may increase during adverse weather conditions, when strong winds, tides and poor visibility may cause vessels to drift towards the array area. During the construction phase, which is expected to last up to 8 months, 500 m Safety Zones will be imposed around all major construction vessels. However, Project construction and service vessels will be required to comply with the principles of good seamanship, COLREGs (International Regulations for Preventing Collisions at Sea (1972)) and regulations of Milford Haven Port Authority (MHPA) in order to safely transit within MHPA's port limits. Additionally, given the relatively low number of additional movements this will entail, there is not anticipated to be a substantial increase in collision risk. The likelihood of occurrence is extremely unlikely for collisions between all other vessels within the array area and along the offshore export cable corridor.

27.6.2.54 The sensitivity of the recreation users is assessed as medium, and magnitude of impact is considered to be low, as restricted areas will present a short-term reversible change. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

27.6.2.55 The sensitivity of the Chartered Boat Tour Businesses was assessed as medium, and magnitude of impact is considered to be low, as restricted areas will present a short-term reversible change. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.2.56 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms.

27.6.3 Operation and Maintenance – Tourism and Recreation

27.6.3.1 In the event offshore export cable and onshore export cable repairs are required during the O&M phase, effects associated with this activity would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration.

27.6.3.2 Impacts on the majority of tourism and terrestrial/ coastal recreation receptors were scoped out in the Scoping Report and subsequent assessment, due to the very limited nature of maintenance activities.

27.6.3.3 The presence of offshore infrastructure and nearshore cable protection for the operational lifetime of the Project has been assessed to identify if there will be any

impact on the local wave and tidal regime. This is not only to identify if there would be any changes to the local hydrodynamic and sediment transport conditions, but also for understanding the impact on the socioeconomical activities in the area, such as surfing.

27.6.3.4 The offshore array infrastructure (semi-submersible floating platforms, moorings, cables and anchors) is proposed to be located approximately 35 km or more from the coastline, in water depths of between 65 to 85 m below LAT. The presence of the infrastructure has been assessed to identify if any potential blockage to the waves and tidal currents may occur. Although there may be some localised blockage to tidal currents directly behind the structures, presenting as surface or upper water column wake features, these will recover rapidly downstream becoming insignificant within a few hundred metres, recovering well in advance of the coast. It is understood that smaller waves (<8 seconds) are more likely to be reflected by the infrastructure than larger waves (>10 seconds) however, should there be any reduction, the sea state will also recover to the ambient condition through natural spreading and dispersion of wave energy well in advance of reaching the coast.

27.6.3.5 The requirement for cable protection across the offshore export cable corridor and array area has also been assessed, with a realistic worst case scenario used to inform the assessment. Further refinement will be ongoing as part for the Project. Of particular note are the approaches to Milford Haven estuary, offshore of Freshwater West; here water depths are approximately 40 to 50 m below LAT. At these depths, any protection would not present a sufficient obstacle to cause change in the magnitude or direction of any waves or tidal currents that would affect the local coastlines. Within Milford Haven estuary, there is no cable protection anticipated; the only possible exception is at the HDD exit point if burial is not achieved (offshore of West Angle Bay). For this location, whilst it can reasonably be expected that there will be some localised change to waves and hydrodynamics within the immediate vicinity of the rock berms (depending on tidal state), the potential for wider effects (i.e. the beach at West Angle Bay) is considered to be limited. Therefore, there is not deemed to be any significant impact from the Project on the local hydrodynamic and sediment transport conditions on the local coastline.

27.6.3.6 Impacts on recreational vessel activity were included in the Scoping Report due to the potential to affect exclusion areas. In addition, effects on chartered boat operators were raised during consultation and are covered in Section 27.6.3.9 below.

Disruption/ reduced access to local businesses

27.6.3.7 During the operational phase of the Project it is anticipated that there will be no significant impacts on local businesses. Maintenance checks would be limited to annual visual inspections along the onshore export cable. In the unlikely event repairs are required, a section of the cable (e.g. typically 10's of m length) would be removed, and a new section (cable spare) will be spliced in with field joints, and the cable reinstalled to its previous state. Maintenance works to the substation will be based on the components and therefore is not anticipated to impact local businesses.

27.6.3.8 The sensitivity of local businesses was assessed as high, and magnitude of impact is considered to be negligible, as any maintenance works or repairs which may cause disruption and reduced access will only be in place for a couple of weeks and are considered short-term. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

Disruption to Recreational Vessel Activity and Chartered Boat Tours

27.6.3.9 Once operational the array area structures (semi-submersible floating platform and subsea mooring/array cable equipment) will be shown clearly on appropriately scaled nautical charts and electronic charts in line with United Kingdom Hydrographic Office (UKHO) standard and using wind farm symbology. Any major maintenance events will employ Safety Zones of up to 500m. Recreational vessels, for example, yachts and motor cruisers will continue to be able to access the array area and navigate through but some recreational fishing activities may be disrupted within the array area. Chartered Boat Tours, including Celtic Charter and Broadside Charters, chum the water during whole day drifts and concerns were raised that if they had to stop drifting and alter course to avoid collision with array infrastructure, the chum trail would be 'lost' and the chance of successfully attracting target species (e.g. blue sharks) would be reduced.

27.6.3.10 However the array area is not actively targeted by the Chartered Boat Tours, their operations focus further offshore in the Celtic Deep and with pre-planning of operations to account for current and weather (and therefore direction and rate of likely drift), this impact could reasonably be avoided.

27.6.3.11 The presence of the array area may also increase transit time and result in disruption from re-routed vessel traffic and steering hours having to avoid the array area. However navigational rights will still exist and small chartered boats will not have to re-route. If for any reason they chose to avoid the array area this would only result in a minor increase in transit time.

27.6.3.12 It was identified during the consultations undertaken with key stakeholders that the presence of semi-submersible floating platforms and WTGs within the array area would contribute to the loss of 'Wilderness' in the Celtic Deep (as quoted by Celtic Deep Waters – Wildlife Tours). It was considered this may have an impact on the setting of the wildlife trips undertaken by the various Chartered Boat Tours. There is an attraction to this area due to it being 'wild' and 'untouched' which is a focal point and is part of the attraction when advertising these trips to the public. However, the array area is west of the Celtic Deep and does not directly overlap this area. The WTGs would be visible while transiting to and from, and during the visitors time at sea however there would only be a maximum of 10 WTGs forming a small part of the vista.

27.6.3.13 Several of the Chartered Boat Tour businesses also raised concerns about the potential operational impacts of the structures and the noise disturbance this may have on marine mammals, potentially driving them away from the area and contributing further to the operational impacts of their businesses. This is assessed in Chapter 12: Marine Mammals.

27.6.3.14 The sensitivity of these businesses was assessed as medium, and magnitude of impact is considered to be low. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

27.6.4 Decommissioning – Tourism and Recreation

Disruption/Reduced Access for Terrestrial and Coastal Tourism and Recreation Users.

27.6.4.1 No impacts have been identified relating to the disruption/ reduced access for coastal tourism and coastal recreational users as it is assumed the export cable at landfall will remain in situ. The substation will be decommissioned and all electric plant will be removed from their foundations and transported to a facility for processing for reuse, recycling and/or disposal. The decommissioning and dismantling of the substation is not anticipated to have any significant impacts on coastal tourism and recreation users.

27.6.4.2 The sensitivity of coastal and terrestrial tourism and recreation users was assessed as medium and the magnitude of the impact for users is considered to be negligible. Therefore, a **negligible adverse** effect is predicted**,** which is not significant in EIA terms.

Disruption/ Reduced Access to Local Businesses

27.6.4.3 No impacts have been identified relating to the disruption/ reduced access to businesses as it is assumed the export cable at landfall will remain in situ. The substation may be decommissioned and all electric plant will be removed from their foundations and transported to a facility for processing for reuse, recycling and/or disposal. The sensitivity of these businesses with a fixed location was assessed as high and the magnitude of the impact is considered to be negligible as the export cable at landfall will remain *in situ*. Therefore, a **negligible** effect is predicted, which is not significant in EIA terms.

Disruption to Recreational Vessel Activity and Chartered Boat Tours

27.6.4.4 Impacts relating to disruption of recreational vessel activity arising from decommissioning are anticipated to be similar to those identified for construction in Section 27.6.2.50. Safety zones extending 500 m from vessels will be required during the decommissioning of offshore infrastructure. The sensitivity of these users was assessed as medium, and magnitude of impact is considered to be low. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

27.6.4.5 Impacts relating to the disruption of Chartered Boat Tours and the impacts on the operation of the business are anticipated to be similar to those identified for construction in Section 27.6.2.51. Safety zones extending 500 m from vessels will be required during decommissioning of offshore infrastructure. The sensitivity of these businesses was assessed as medium, and magnitude of impact is considered to be low. Therefore, a **minor adverse** effect is predicted, which is not significant in EIA terms.

27.6.5 Construction – Socio-Economics

27.6.5.1 The Project is expected to support the current supply chain and encourage businesses to relocate to the local area and thus create additional jobs. This will subsequently generate economic benefits within the area. The analysis examines the extent that new jobs will create additional Gross Value Added (GVA). The employment will also generate further demand across the new businesses' supply chains, which in turn creates additional economic growth and jobs.

27.6.5.2 The employment impacts generated by the Project can be categorised as follows:

- Direct employment – generated by direct construction expenditure which will be supported throughout the temporary construction phase; and
- Indirect and induced employment – additional jobs and economic activity supported through 1) the supply chain impacts of those businesses generating direct employment and 2) the expenditure of businesses and employees within the local and wider UK economy. Those directly or indirectly employed via activity within the Project will, for example, support further employment in the local economy through their expenditure on goods and services. The geographical distribution of this expenditure will be influenced by the port used during the construction phase as well as the geography of the Project supply chain.

27.6.5.3 This section covers the estimated impacts in terms of job creation and the associated GVA according to the different stages of the Project. The jobs created are broken down into gross and net amounts for both the direct and indirect categories. Gross jobs are the number of jobs created before additionality whilst net jobs are the jobs created after additionality. The GVA impacts are broken down into direct and indirect GVA.

Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities

Construction Employment

27.6.5.4 Table 27.20 shows the indirect and direct jobs created during the CAPEX stage of the Project.

Table 27.20 – Total Construction Jobs Created, Before and After Additionality

Direct Gross Jobs	Direct Net Jobs	Indirect/Induced Gross Jobs	Indirect/Induced Net Jobs
715	578	818	662

27.6.5.5 As shown in Table 27.20 the direct jobs created is 715 and after applying an additionality rate of 81% the direct net jobs is found to be 578. The indirect and induced jobs are higher than the direct jobs in both cases with 818 gross jobs and 662 net jobs.

27.6.5.6 The current baseline employment level within the construction industry for Pembrokeshire is set out in Table 27.16. In the context of a relatively modest pool of construction workers in Pembrokeshire. The sensitivity of the local labour market is assessed to be medium, and the direct, indirect and induced employment and expenditure created by the temporary construction phase of the Project is likely to have a medium magnitude of impact. It is, therefore, anticipated that the construction phase will result in a **moderate beneficial** effect, which is significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.5.7 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Increase in Professional Roles and Training Opportunities

27.6.5.8 The construction phase of the Project will support and increase the number of professional roles in the local area and throughout Pembrokeshire. The construction phase and all the works associated with it will support a number of highly skilled, professional roles across a range of activities.

27.6.5.9 These will include specialist engineering roles as well as professional management and supervisory roles during construction. The Project will also provide a number of additional roles through appropriate training opportunities, especially those relating to construction phase job opportunities for the local labour force. During the course of the supply chain consultations undertaken for this impact assessment, several respondents stated that they already provide training to those seeking professional roles in the sectors impacted by the Project and that these initiatives will continue and are likely to expand going forwards.

27.6.5.10 The occupational structure of the Pembrokeshire economy is currently underrepresented with regards to professional and technical occupations compared to the average for Wales as a whole. The creation of employment during the construction phase presents a significant opportunity for local residents to increase their prospects and earnings related to new high skilled employment opportunities and training initiatives.

27.6.5.11 It is likely that the creation of new professional roles and training opportunities throughout the temporary construction phase would have a low magnitude of impact and the labour market is assessed to have a medium sensitivity. It is therefore anticipated that the Project will result in a **minor beneficial** effect at a local level, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.5.12 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Gross Value Added (GVA) Impacts Supported by Construction Activity

27.6.5.13 The employment and activity generated by the Project will increase economic activity in the economy (as measured by its GVA impact). GVA is used in the estimation of GDP, which is a key indicator of economic activity across the whole economy. The methodology used to estimate each benefit is as follows:

- Direct Employment – number of jobs generated per £1.12 million of output (2021 prices); and
- Indirect and induced employment – the indirect and induced effects will be estimated by the use of economic multipliers taken from the Office for National Statistics 2015 Input-Output Tables.

27.6.5.14 The number of direct and indirect/induced jobs has been calculated based on the scheme costs provided covering, CAPEX (inc DEVEX), OPEX and DECEX costs).

Table 27.21 – Total CAPEX GVA

Direct GVA (£m)	Indirect GVA (£m)
£117.7m	£116.2m

27.6.5.15 Table 27.21 displays the total direct and indirect GVA impacts of the Proposed Development. The direct construction GVA is £117.7 million, higher than the indirect GVA of £116.2 million.

27.6.5.16 The significance of the effect on GVA is primarily driven by the sensitivity of the receptor rather than the magnitude of change. The absolute level of GVA creation during the construction phase does not represent a discernible change from the baseline and therefore the magnitude is assessed to be negligible. However, given the high sensitivity of the receptor it has been assessed that the Project is likely to have a **minor beneficial** effect, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.5.17 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Increased Performance of the Local Renewable Energy Sector

27.6.5.18 The close proximity of the Project to specialist marine and engineering activities in and around Pembroke Dock will help to support clustering effects as companies in these fields will co-locate to this area. Similar to what has been experienced at other coastal locations with close ties to the energy sector (such as Great Yarmouth in Norfolk), clusters of inter-related companies will continue to develop within the supply chain generating multiple positive benefits including workforce skills development and capital investment in equipment and premises. These impacts in turn help to stimulate agglomeration effects and catalyse further inward investment to the area taking advantage of local skills and expertise development. As well as serving the Project, the cluster will support other renewable energy developments as detailed in Section 27.9.

27.6.5.19 Given the construction phase is temporary in nature it is not likely that the scale of construction activity would be large enough to stimulate additional economic activity locally within the renewable energy sector. However, the cumulative effects of the scheme to this regard are considered in Section 27.9.

27.6.5.20 The assessment concludes the Project is likely to have a negligible magnitude of impact on the local renewable energy sector, whilst the sensitivity of the receptor is assessed to be high. Therefore, a **minor beneficial** effect is predicted, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.5.21 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

27.6.6 Operation – Socio-Economics

Operational Employment, including Supply Chain Impacts

27.6.6.1 Operational phase employment opportunities will be driven by the number of employees required for the Project operation and maintenance (O&M) activities as well as supply chain expenditure on materials, components, transportation and other supplies including sub-contracted maintenance activities and expenditure.

27.6.6.2 Table 27.22 shows the indirect and direct jobs created in the OPEX stage of the Project.

Table 27.22 – Total Construction Jobs Created, Before and After Additionality

Direct Gross Jobs	Direct Net Jobs	Indirect/Induced Gross Jobs	Indirect/Induced Net Jobs
146	118	283	229

27.6.6.3 In Table 27.22 we can see that the direct jobs created is 146 and after applying additionality the direct net jobs is found to be 118. The indirect/induced jobs are higher than the direct jobs in both cases with 283 gross jobs and 229 net jobs.

27.6.6.4 It is assumed that all direct jobs created by the Project would be UK based. It is also assumed that indirect employment generation would be focused within a number of sectors relating to the manufacture and installation of component parts, engineering and design activities associated with maintenance requirements and land and marine transport of components.

27.6.6.5 Whilst the geographical distribution of the O&M supply chain expenditure is not currently known it is likely that a proportion will be retained within the local economy. The increase in direct employment generated by the Project would have a noticeable impact on the size of the energy sector locally, whilst the indirect impacts are likely to be less noticeable, albeit creating new employment opportunities locally. The magnitude of impact is, therefore, assessed to be medium, whilst the sensitivity of the receptor is medium. Therefore, a **moderate beneficial** effect is predicted, which is significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.6.6 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Increase in Professional Roles and Training Opportunities

27.6.6.7 During its operational phase, the Project will support and increase the number of professional roles in the local area and throughout Pembrokeshire. This is because the specialist operational activities associated with the Project will support a number of highly skilled, professional roles across a range of activities. Operational activities will include maintenance, repair / replacement and specialist engineering tasks.

27.6.6.8 As well as specialist engineering roles, there will also be professional management and supervisory roles during the operational phase. The Project will also provide a number of additional professional roles through appropriate training opportunities.

27.6.6.9 The occupational structure of the Pembrokeshire economy is currently underrepresented with regards to professional and technical occupations compared to the average for Wales as a whole. The creation of employment during the O&M phase presents a significant opportunity for local residents to increase their prospects and earnings related to new high skilled employment opportunities and training initiatives.

27.6.6.10 Increases in professional roles and training in the energy and offshore wind sectors will also be important given the national objectives of boosting economic activity in 'clean growth' and the need to provide the local workforce with the necessary skills and training to enable them to move into these higher value, professional roles.

27.6.6.11 It is likely that the creation of new professional roles and training opportunities throughout the O&M phase would have a low magnitude of impact and the labour market is assessed to have a medium sensitivity. Therefore, it is predicted that a **minor beneficial** effect will arise at a local level, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.6.12 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

Gross Value Added (GVA) Impacts Supported by O&M Activity

27.6.6.13 The GVA impacts for operational are shown in Table 27.23.

Table 27.23 – Total OPEX GVA

Direct GVA (£m)	Indirect GVA (£m)
£104.9m	£203.3m

27.6.6.14 Table 27.23 shows the indirect operational GVA is £203.3 million, higher than the direct GVA of £104.9 million.

27.6.6.15 The significance of the effect on GVA is primarily driven by the sensitivity of the receptor rather than the magnitude of change. The absolute level of GVA creation during the O&M phase does not represent a discernible change from the baseline and therefore the magnitude is assessed to be negligible. However, given the high sensitivity of the receptor it has been assessed that the Project is likely to have a **minor beneficial** effect, which is not significant in EIA terms.

Increased Performance of the Local Renewable Energy Sector

27.6.6.16 The O&M phase of the Project would have a similar impact on the renewable energy sector locally as the construction phase. The additional economic activity stimulated by the Project including supply chain impacts could give rise to catalytic impacts locally through improved performance in the renewables sector. Whilst the scale of employment impacts within the O&M phase is assessed to be smaller than the construction phase, the effects on the renewables sector will be long-term and permanent.

27.6.6.17 The scale of employment impacts generated within the O&M phase would have a noticeable impact on the renewable energy sector locally, although the magnitude of impact on the sector as a whole in likely to be limited taking the Project in isolation. The in-combination effects of the O&M phase of the Project on the renewables sector is considered in more detail in Chapter 30: Cumulative Effect Assessment.

27.6.6.18 The assessment concludes that the Project is likely to have a negligible magnitude of impact on the local renewable energy sector, whilst the sensitivity of the receptor is assessed to be high. Therefore, a **minor beneficial** effect is predicted, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.6.19 None of the effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

27.6.7 Decommissioning – Socio-Economics

Decommissioning Employment including Supply Chain Impacts

27.6.7.1 The type of decommissioning employment activities generated during this phase of the Project are likely to be similar in profile to those generated within the construction phase. Table 27.24 shows the direct, indirect and induced jobs created within the DECEX phase of the Project.

Table 27.24 – Total Decommissioning Jobs Created, Before and After Additionality

Direct Gross Jobs	Direct Net Jobs	Indirect/Induced Gross Jobs	Indirect/Induced Net Jobs
42	33	55	45

27.6.7.2 Table 27.24 shows that the direct jobs created is 42 and after applying additionality the direct net jobs is found to be 33. The indirect and induced jobs are higher than the direct jobs in both cases with 55 gross jobs and 45 net jobs.

27.6.7.3 At this stage of the Project, it is difficult to assess with any certainty the proportion of decommissioning jobs which would be captured locally, compared to those which would be sourced nationally, or even internationally. It is likely however that a significant proportion of decommissioning employment activity would be sourced from outside the Local Impact Area.

27.6.7.4 It is, therefore, assessed that the Project would have an employment effect of negligible magnitude and the sensitivity of the receptor is medium. Therefore, a **negligible** effect is predicted, which is not significant in EIA terms.

Gross Value Added (GVA) Impacts Supported by Decommissioning Activity

27.6.7.5 The GVA impacts for decommissioning are shown in Table 27.25 and are based on the same methodology for assessing GVA effects during construction.

Table 27.25 – Total Decommissioning GVA

Direct GVA (£m)	Indirect GVA (£m)
£0.8m	£1.1m

27.6.7.6 Table 27.25 shows the total direct and indirect GVA impacts of this proposed development. The direct Decommissioning GVA is £0.8 million, lower than the indirect GVA of £1.1 million.

27.6.7.7 In the context of the current baseline level of GVA in the Local Impact Area, this effect is assessed to be of negligible magnitude, and the receptor of high sensitivity. Therefore, a **minor beneficial** effect is predicted, which is not significant in EIA terms.

Summary of Economic Impact Assessment

27.6.7.8 This section acts as a summary to the economic impacts combining jobs and GVA values found in CAPEX, OPEX and Decommissioning.

27.6.7.9 Table 27.26 shows the total jobs created from the Project, this is split into direct and indirect/induced jobs and whether the jobs are gross or net.

Table 27.26 – Total Jobs Created, Before and After Additionality

Cost Type	Direct Gross Jobs	Direct Net Jobs	Indirect/Induced Gross Jobs	Indirect/Induced Net Jobs
CAPEX	715	578	818	662
OPEX	146	118	283	229
DECEX	42	33	55	45
Total	**903**	**729**	**1,156**	**936**

27.6.7.10 In Table 27.26 we can see the scheme will create 2,059 gross jobs or 1,665 net jobs. CAPEX is the largest contributor of direct gross jobs created with 715 jobs created. This is too be expected with the cost of CAPEX being higher than the costs associated with OPEX and DECEX. OPEX is estimated to create a smaller number of jobs, 146 direct gross jobs whilst DECEX are estimated to create 42 and 33 gross and net jobs respectively. Combining the CAPEX, OPEX and DECEX jobs created, the total direct gross jobs is 903 whilst the net jobs is 729.

27.6.7.11 For Indirect/Induced jobs CAPEX is also the largest contributor with 818 gross jobs and 662 net jobs. OPEX is the next largest contributor with 283 gross jobs and 229 net jobs, higher than DECEX which has 55 gross jobs and 45 net jobs. Combining the CAPEX, OPEX and DECEX jobs created, the total indirect/induced gross jobs is 1,156 whilst the net jobs is 936.

27.6.7.12 Table 27.27 shows the GVA that will be generated across the proposed development stages as well as the total GVA that will be generated, either directly or indirectly.

Table 27.27 – Total GVA

Cost type	Direct GVA (£m)	Indirect GVA (£m)
CAPEX	£117.7m	£116.2m
OPEX	£104.9m	£203.3m
Total	**£223.4m**	**£320.6m**

27.6.7.13 Table 27.27 shows the total indirect/induced GVA is higher than the total direct GVA. Total indirect/induced GVA is estimated to be £320.6 million compared to £232.4 million for Direct GVA. Indirect OPEX is the largest contributor to overall GVA with £203.3 million and accounting for 63% of total OPEX GVA £320.3 million.

27.6.7.14 Overall, the project will likely provide significant benefits in terms of GVA and jobs created to the local Pembrokeshire economy and wider area, through the provision of direct jobs created on the proposed development or indirect jobs created in the supply chain or through the significant GVA benefits this proposed development will bring.

27.6.8 Construction – Human Health

Health Effects from Direct Economic Benefits/ Employment

27.6.8.1 There is potential for a temporary beneficial impact during construction on the local economy as expenditure within the local supply chain is likely to increase during the construction works. This expenditure is likely to be spread throughout the region, depending on the goods and services sought (indirect, induced impacts).

27.6.8.2 Health outcomes as a result of increased employment opportunities and income levels during construction (such as a reduction in incidents of depression and improved mental health and social contact) are anticipated to be of temporary, short to medium-term, and of low magnitude. Therefore, a **minor beneficial** effect, which is not significant in EIA terms, is predicted to the population. This is due to the indirect benefit to health gained from employment as well as improved household financial stability, though potentially only benefiting a small number of employees and their families.

Additional Mitigation and Residual Effect

27.6.8.3 None of effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

27.6.9 Operation – Human Health

Electromagnetic field impacts

27.6.9.1 Based on a recent in-depth review of the scientific literature, the WHO concluded that present evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields (WHO EMF Project, 2019). No acute effects other than transient phenomena such as vertigo and nausea have been observed with exposure to static magnetic flux densities up to 8 tesla ('T') (van Rongen, 2007). This is several orders of magnitude higher than would be experienced from standard electricity network infrastructure (National Grid, 2019). In the view of the National Radiological Protection Board ('NRPB' (now PHE)), it is important to consider the possible need for further precautionary measures in respect to exposure of children to power frequency magnetic fields (NRPB, 2004).

27.6.9.2 Reports of associations between health problems and presumed exposure to electromagnetic fields have not been regarded by the scientific community as being necessarily caused by the field exposures. A number of epidemiological studies have suggested that there were increases in risk of childhood leukaemia with long term exposure to low frequency magnetic fields. However, results indicate a lack of a cause-effect relationship between exposure to the fields and disease (Mezei., 2001; Kheifets., 2001; Kheifets, 2010). The Health Protection Agency (now PHE) advises that the EMF association with childhood leukaemia is weak and unproven (HM Government, 2009).

27.6.9.3 There are some indications of non-specific medically unexplained symptoms suggested to be associated with EMF exposure, though it was considered that these symptoms were a consequence of exposure to other sources and may be due to stress reactions as a result of worrying about EMF health effects, rather than the EMF exposure itself (WHO, 2005).

27.6.9.4 In the absence of any scientific evidence of a health effect, a population may still retain some element of fear of an installation. This fear alone may have negative health impacts upon a population (Steimer, 2002).

27.6.9.5 It is theoretically possible for power lines to cause interference with pacemakers, defibrillators or other active implanted medical devices; however, this is very rare and there is no recorded instance of a patient coming to any harm this way in the UK (Energy Network Association, 2017).

27.6.9.6 In the UK, there are presently no statutory regulations to limit public exposure to power-frequency electric or magnetic fields. However, in 2004 the NRPB (now PHE) provided advice to Government (NRPB, 2004), recommending the adoption of the UK public exposure basic restrictions published in 1998 by the International Commission on Non-Ionizing Radiation Protection ('ICNIRP') (ICNIRP, 1998). The basic restrictions are designed to set conservative exposure levels for the general public to 50 Hz electric and magnetic fields, and these are endorsed by the PHE, the WHO and the UK Government.

27.6.9.7 Resulting from these recommendations government policy recommends that exposure of the public the Project should comply with the ICNIRP 1998 guidelines in terms of the 1999 EU Council recommendations (European Union, 1999). The 1999 EU Council recommendation on the limitation of exposure of the public to electromagnetic fields recommends use of 1994 guidance for static magnetic fields. The limits of static magnetic fields are governed by this.

27.6.9.8 The magnetic fields and electric fields associated with onshore export cables are related to the time-varying current carried by the cables. The magnitude of the current depends upon the power captured by the wind farm at any given time. The power capture of the wind farm can be understood by wind statistical analysis, which determines the wind speed distribution and availability. The magnitude of electromagnetic fields around the onshore cable corridor will fluctuate according to the wind farm output and based on the average wind speed, the EMF around the onshore export cable will be less than any expected worst-case value. Following acquisition of site-specific wind data, an estimate of the power output distribution can be derived providing further accuracy of the expected EMF around the onshore export cable.

27.6.9.9 The technical specifications will require that the onshore export cable and substation will be designed to keep EMF below the public and occupational exposure limits in areas where the time of exposure to the general public is considered significant, specified in the appropriate guidelines (National Policy Statement for Electricity Networks Infrastructure (NPS EN-5); and associated voluntary code of practises which are referenced within).

27.6.9.10 The EM fields will be present around the underground High Voltage Alternating Current (HVAC) onshore export cable bundle while it is energised. Laying the onshore export cable in trefoil formation is a method of reducing the magnetic field as the symmetry of the phases results in a substantially reduced external magnetic field compared to onshore export cable laid in flat formation.

27.6.9.11 Due to the grounded shielding of the HVAC and High Voltage Direct Current (HVDC) onshore cables there will be no electric field present along the HVAC cable route and HVDC cable route. The public would therefore not be exposed to electric fields from the onshore cable corridor because the field is contained by the cable's protective metal sheath.

27.6.9.12 Adverse health impacts upon the local population could occur as a consequence of the fear of perceived harm to health as a consequence of EMF exposure brought about by the onshore export cable and substation. This could result in both anxiety and fear, particularly for local residents in close proximity to the footprint of the Project. This will only apply to a few members of the population, given the rural location, and will reduce over time when no health impacts are realised and is therefore considered to be of negligible magnitude. Therefore, a temporary **negligible** effect is predicted, which is not significant in EIA terms.

Additional Mitigation and Residual Effect

27.6.9.13 Embedded mitigation will be incorporated into the design of the Project to avoid/reduce any likely significant effects, this includes a Communications Strategy which will be implemented to ensure that Human Health receptors are kept up to date with the construction works and any concerns they have can be addressed.

Well-being of Future Generations Goals associated with Green Energy

27.6.9.14 When renewables contribute to reducing the use of fossil fuels and associated air pollutant emissions, they have a positive effect on human health by reducing concentrations of harmful air pollutants. Wind energy does not pollute the air like power plants that rely on combustion of fossil fuels, such as coal or natural gas, which emit particulate matter, nitrogen oxides, and sulphur dioxide causing human health problems and economic damages. As wind is a clean energy source, wind energy reduces health care and environmental costs associated with air pollution. Health benefits of wind power include the absence of greenhouse gas and other pollutant emissions during operation (although some emissions are associated with manufacturing the equipment), as well as the absence of a routine waste stream.

27.6.9.15 Wales is seeking an increasingly renewable and locally owned set of generation assets. This change is being driven by Welsh Government's ambitions on climate change and sustainability, exemplified by the Well-being of Future Generations (Wales) Act 2015 and the new clean electricity targets, and also by an energy revolution (Climate Change Committee, 2020). The Welsh Government's target is for 70% of Wales' needs to come from renewables by 2030. The most recent figures show 51% of Wales' total consumption coming from renewable generators (Climate Change Committee, 2020).

27.6.9.16 The air and water pollution emitted by coal and natural gas plants is linked with breathing problems, neurological damage, heart attacks, cancer, premature death, and a host of other serious problems. Welsh Government published the Clean Air Plan for Wales in August 2020 which aims to improve air quality and reduce the impacts of air pollution on human health, biodiversity, the natural environment and our economy. Emissions fell by 20% in just two years from 2016 to 2018, with the closure of Wales' last coal-fired power station in Aberthaw (Welsh Government, 2018).

27.6.9.17 Access to reliable, cost effective and environmentally sustainable energy can have a multiplier effect on development and lead to reduced health effect, improved livelihoods, poverty alleviation, job creation, and gender equality. The population health impacts appear to be far lower for wind power than for the equivalent energy generation by fossil fuel combustion (Smith, K. et al, 2013).

27.6.9.18 The sensitivity of the Study Area population is considered to be medium and the magnitude of the impact to be lowr. Therefore, a **minor beneficial** effect is predicted on Human Health which is not significant in EIA terms. Beneficial effects felt by the population are likely to be long-term and indirect, and most likely to be future populations rather than the current one.

Additional Mitigation and Residual Effect

27.6.9.19 None of effects identified above are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required to reduce the significance to non-significant in EIA terms and the significance of residual effects remain as detailed above.

27.6.10 Decommissioning – Human Health

27.6.10.1 It is anticipated that effects during the decommissioning phase would be similar to those identified during construction, health benefits from direct economic benefits/ employment. However, it is assumed that the landfall infrastructure and onshore export cable would remain in situ so that impacts would be reduced in scale. Some health benefits remain from employment and economic activity associated with dismantling the onshore substation and offshore infrastructure. Therefore, a **minor beneficial** effect is predicted, which is not significant in EIA terms.

27.7 Additional Mitigation

27.7.1.1 Due to the predicted moderate adverse (significant) effect on the Café at West Angle Bay (Wavecrest Café) and West Angle Caravan park, in terms of the level of disturbance, additional mitigation will be required to address these impacts.

27.7.1.2 In addition to the standard mitigation, which includes proposed mitigation outlined within the CEMP it is proposed that the following measures are implemented:

- Site-specific solutions such as temporary screening and noise barriers will be applied around the main items of noise generating activities; and
- Communication Strategy and a Community Liaison Officer will be employed to inform businesses and residents of the construction schedule and programme and location of construction activities.

27.7.1.3 With successful implementation of both standard and additional mitigation measures, it is predicted that the residual effect will be reduced to **minor adverse** (Café at West Angle Bay (Wavecrest Café) and West Angle Caravan park).

27.8 Inter-Related Effects

27.8.1.1 Inter-relationships are considered to be the effects of different aspects of the Project on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Project (construction, O&M, and decommissioning); to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three key project stages (e.g. subsea noise effects from piling, operational WTGs, vessels and decommissioning); and
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on benthic ecology such as direct habitat loss or disturbance, sediment plumes, scour, jack- up vessel use etc., may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects might be short-term, temporary or transient effects, or incorporate longer term effects.

27.8.1.2 The assessment of impacts arising from construction, operation and decommissioning of the Project indicates that impacts on receptors addressed in different aspects of the Project may potentially further contribute to the impacts assessed on socio-economics and vice versa. These are primarily Chapter 16: Shipping and Navigation, Chapter 18: Coastal and Marine Infrastructure and Other Users, Chapter 22: Onshore Noise and Vibration, Chapter 25: Traffic and Transport and Chapter 26: Air Quality.

27.8.1.3 For this assessment, these are primarily from reduced access, noise dust and visual annoyance, traffic congestion and reduced amenity from multiple sources, which have the potential to combine and increase the magnitude of impact on tourism and recreation receptors. The worst-case impacts assessed within this chapter take these interactions into account and therefore the assessments are considered conservative and robust.

27.9 Monitoring

27.9.1.1 The following monitoring is proposed to form part of the Project Environmental Monitoring and mitigation Plan:

- Questionnaires of selected local businesses and tourism/recreation groups during installation phase and then 1 and 2 years post-construction to identify any specific impacts that have arisen on their businesses/operations.

27.10 Cumulative Effects Assessment

27.10.1.1 A Cumulative Effects Assessment (CEA) has been made based on existing and proposed Projects in the Study Area. The approach to the CEA is described in Chapter 30: Cumulative Effects. Cumulative effects are defined as those effects on a receptor that may arise when the development is considered together with other reasonably foreseeable projects.

Table 27.28 – Summary of projects relevant for Cumulative Assessment in relation to Socio-Economics, Tourism and Recreation

Project	Tier	Distance from array (km)	Distance from export cable	Footprint of project area (km)	Construction Timings
Greenlink Interconnector	2	17.8	0	0.16	2024
META – East Pickard Bay (Bombora)	1	40	3.0	1.23	Summer 2022, for a maximum duration of 18 months (including removal)
META – Warrior Way	2	51.7	12.6	0.093	As test and demonstration sites deployment and recovery will be dictated by client booking. There is no programme, and activity will be managed by Notices to Mariners
META – Dale Road	2	39.6	2.3	0.195	

Project	Tier	Distance from array (km)	Distance from export cable	Footprint of project area (km)	Construction Timings
					(NtMs) and stakeholder updates.
Project Valorous	2	3.3	9.7	100-150 (1 nm buffer)	2026-2028, generating 2029
Land at the Valero Refinery, Rhoscrowther;	1	N/A	1 km	Not known	Not known.
Pembroke Oil Refinery, Rhoscrowther;	1	N/A	2	Not known	Not known.
Land to the south of Pembroke Power Station, Lambeeth Farm;	1	N/A	2.5	0.12	Not known.
Greenhill Farm, C3101 Pwllcrochan to Wallaston Cross, Pwllcrochan; and	1	N/A	2.2	0.009	Not known.
Plot C2 Llanion Hill, Pembroke Dock.	1	N/A	6	0.007	Not known.

27.10.1.2 There is potential for cumulative effects to occur when multiple developments are being constructed and operated at the same time. Impacts described in Section 27.6 above have the potential to combine with other projects and increase the magnitude of impact on receptors.

27.10.1.3 The potential cumulative effects of the Pembrokeshire Demonstration Zone (PDZ) have not been considered at the time of writing due to the lack of detail with which to assess the effects of the proposed project. An EIA Scoping Report was produced and issued to NRW in 2018 for a proposed wave/floating wind project however based on discussions with Celtic Sea Power (the 3rd party agents for the PDZ) and recent public presentations by members of Celtic Sea Power, it is understood the PDZ will be repurposed as an offshore electrical hub. In the absence of an updated EIA Scoping Report and insufficient project information to allow the effects to be reasonably understood and a cumulative assessment undertaken, it has been omitted from this assessment.

27.10.1.4 For those reasons identified above, including the absence of EIA Scoping Reports, the potential cumulative effects of the recently announced Llyr 1, Llyr 2 and Whitecross FLOW projects are also omitted from this cumulative assessment.

27.10.1.5 As set out in PINS Guidance Note 17: Cumulative Effects Assessment, the Project proposed an assessment cut-off date of 1 October 2021 to allow the finalisation of the EIA and HRA assessments, even if project information came forward between the cut-off date and submission. This was agreed with NRW Marine Licensing, noting that in the absence of S.36/Marine Licence guidance the Project was drawing upon the best available advice. It is understood that should sufficient detail of these projects come forward following submission the Project may be requested to provide additional information during the determination period.

27.10.1.6 It should also be noted that META – East Pickard Bay (Bombora), META – Warrior Way and META – Dale Road are not generating energy and exporting electricity to the grid. These sites are test and demonstration only with no export cable.

27.10.1.7 Those projects identified for this assessment are listed in Table 27.28 above and are based on the study areas for receptors described in Sections 27.4 and potential for overlapping periods of construction, operation and decommissioning. It should be noted that exact construction periods for some developments are not currently known, and where this is the case, for the purpose of this assessment, it is assumed that construction periods overlap to provide a worst-case scenario.

27.10.1.8 Table 27.28 identifies a number of offshore energy projects. Specific considerations for these included:

- Construction periods for local effects on terrestrial/ coastal tourism and recreation (5 km);
- Zone of influence for navigation (20 km) during construction and operation for recreational vessels and business;
- Wider construction and operational socio-economic effects for Pembrokeshire; and
- Health effects during operation.

27.10.1.9 Other onshore developments listed, even where there is uncertainty with the construction programme, are limited to private land or within existing industrial clusters, so are unlikely to have cumulative effects with the Project on tourism and recreation, nor potentially significant effects on socio-economic receptors. Health effects are considered in relation to EMF from energy projects (Greenlink Interconnector and Project Valorous).

27.10.2 Construction

Tourism and Recreation

27.10.2.1 The construction phases for the META sites will not overlap with the Project. Bombora may overlap but only during the decommissioning of the mWave which can easily be avoid as the infrastructure is towed back to Pembroke Port. Project Valorous may overlap with the Project for a very short period at the end of 2026 however this is only likely to be onshore construction at the substation for the Project. Given the uncertainty and insufficient project information to allow the effects to be reasonably understood a cumulative assessment has not been undertaken. However, it should be noted both projects are being developed by the same Applicant and mitigation could be put in place to ensure there were no cumulative effects from the construction of both projects.

Socioeconomics

Direct employment, increase in professional roles and training

27.10.2.2 During the construction phase of the Project, there will be a requirement for a significant number of workers across a range of different skills and trades. Some of this work force will be sourced from the local labour market whilst other more specialist staff will be sourced from further afield. Consultation with organisations such as META Wales has indicated that there could be shortages with respect to supply chain capacity and the availability of suitable numbers of workers to cover the construction activities.

27.10.2.3 This will need to be managed through appropriate timing and scheduling of when workers are required during the construction programme. Where appropriate, training of local workers can also mitigate labour supply shortages at various points during the construction period. As set out in 27.6.5, the Project will provide training opportunities and the supply chain are already providing training.

27.10.2.4 For these reasons, the assessment of the effect remains as **minor beneficial**, which is not significant in EIA terms.

27.10.3 Operation

Tourism and Recreation

Disruption / reduced access to local businesses

27.10.3.1 Cumulative effects during the operation and maintenance of multiple projects (Greenlink Interconnector and Project Valorous) are not anticipated to be significant. O&M would be limited to repairs or remediation that would only cause disruption or reduced access for a temporary, short period of time. Therefore, cumulative effects relating to local businesses users would remain **minor adverse**, which is not significant in EIA terms**.**

Disruption to Recreational Vessel Activities and Chartered Boat Tours

27.10.3.2 Cumulative effects during the operational phase of the Project and Project Valorous are anticipated to include increased risk of collision and disruption to operations, specifically ‘drifting’. The risk of collision is considered further in Chapter 16: Shipping and Navigation. There is potential that cumulatively both projects will impact Chartered Boat Tours ability to ‘drift’ however the array areas only cover a small area of available sea space and the number of operators/tours are low.

27.10.3.3 Consultations with operators also flagged the potential loss of ‘wilderness’ from the introduction of a FLOW. The cumulative effect of two FLOW projects would extend any seascape impacts but in the context of the Project already being operational there would be no increase in the magnitude of impact. The cumulative effects of seascape are assessed in Chapter 13: Seascape and Landscape Visual Impact.

27.10.3.4 The cumulative effects do not significantly increase the magnitude of impact on recreational vessel users and chartered boat tours, therefore, the significance of effect would remain **minor adverse**, which is not significant in EIA terms.

Socio-economic

27.10.3.5 *Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities*

27.10.3.6 There will be direct and indirect employment benefits in the area, including the inward migration of economically active people, the safeguarding of the existing supply chain and provision of new supply chain opportunities. These benefits will be realised at stages of the Project (construction, operation and maintenance and decommissioning) and will not only offer significant employment opportunities for workers in the area but will also align with Government objectives of encouraging employment in 'clean energy' sectors (and transitioning away from industries such as oil and refining). In addition, the Project will facilitate infrastructure upgrades within Welsh and Pembroke Port infrastructure upgrades when combined with other marine energy projects contributes to a stronger business case to support other energy projects. The cumulative effects of these will be **moderate beneficial**.

Increase in professional roles and training opportunities

27.10.3.7 There will be increases in the availability of professional roles for local workers as well as training opportunities at all stages of the Project. This has been evidenced from the local supply chain consultations where several companies emphasised how the Project will provide many different types of professional employment opportunities whilst also aligning with the various training courses they provide to new and existing employees. The cumulative effect of these will be **minor beneficial,** which is not significant in EIA terms.

Gross Value Added (GVA) impacts including increased productivity, increased revenue opportunities and economic benefit, reducing Welsh Index of Multiple Deprivation.

27.10.3.8 Economic impacts will include those associated with the additional Gross Value Added (GVA) generated by the different stages of the Project, increased productivity due to the higher value nature of the employment opportunities associated with the Project. The positive economic impacts at all stages of the Project will also help to reduce the Welsh Index of Multiple Deprivation in the area by increasing the number of employment opportunities for local workers (thus giving them the opportunity to develop skills and enter higher value employment). The cumulative effect of these will be **minor beneficial,** which is not significant in EIA terms.

Use of green energy, creation of cluster effects and energy security.

27.10.3.9 There will also be a series of other beneficial socio-economic impacts, including the benefits of creating cluster effects at all stages of the Project. Clustering will occur as various businesses related to activities at the Project are located in close proximity to each other. Clustering generates a range of positive impacts, including enhanced productivity and the benefits associated with knowledge exchange and joint working. There will also be the benefits associated with the use of green energy during the operational phase as well as enhanced energy security during this phase. The cumulative effect of these will be **minor beneficial,** which is not significant in EIA terms.

Human Health

Electromagnetic field impacts

27.10.3.10 Adverse health impacts upon the local population could occur as a consequence of the fear of perceived harm to health as a consequence of EMF exposure brought about by onshore export cables and substations for multiple projects. On the south west Pembrokeshire coast, in addition to the Project, there are also similar onshore cable infrastructure required for the Greenlink Interconnector (landfall at Freshwater West), and Project Valorous (landfall unknown). This could contribute to increased levels of both anxiety and fear, particularly for local residents in close proximity to the footprint of these projects. This will only apply to a few members of the population, given the rural location, and will reduce over time when no health impacts are realised and is therefore the cumulative effect relating to Human Health would remain **negligible**, which is not significant in EIA terms.

Well-being of Future Generations Goals associated with green energy

27.10.3.11 The Welsh Government's target is for 70% of Wales energy consumption to come from renewables by 2030. By moving away from the reliance on fossil fuels and increasing the use of green energy, the investment into an energy source that does not leave a legacy of waste, spoil heaps and damaged health, offers an opportunity to make long-lasting positive changes for current and future generations. There is also a positive movement created by public awareness around the need to move away from fossil fuels which was highlighted during the Stakeholder Engagement Consultations with local businesses who were all supportive of the Project's aim to move to a lower carbon energy source. Over the long term, the Projects are likely to have beneficial effects on future populations. Therefore, the cumulative effect relating to Human Health would remain **minor beneficial,** which is not significant in EIA terms.

27.10.4 Decommissioning

27.10.4.1 The same type and significance of cumulative effects as described for the construction phase would potentially arise.

27.11 Transboundary

27.11.1.1 No transboundary effects were identified.

27.12 Summary

27.12.1.1 The Socio-Economic, Tourism and Recreation assessment considered a number of potential effects. For tourism and recreation these include disruption/ reduced access for recreational and chartered vessel activity, coastal recreational users, coastal tourism, terrestrial recreational users and businesses. Socio-economic effects considered included employment and supply chain; skills and training; GVA impacts, creation of cluster effects, use of green energy and energy security. Health effects considered included benefits from employment, impacts from EMF and well-being of future generations.

Tourism and Recreation

27.12.1.2 The area is important for recreation and tourism, due to its coastal location and marine environment, which include beaches on the Angle Peninsula, the Pembrokeshire Coast National Park, Wales Coast Path and Celtic Deep.

27.12.1.3 During construction, there would be some minor local disruption to access and disturbance, but no significant effects were identified on tourism. However, there are a number of local businesses which rely on tourism that are potentially affected, and moderate adverse effects were predicted on the Wavecrest Café and West Angle Caravan Park due to proximity to the works. Additional measures, including communication strategy and temporary screening during construction, are required to help mitigate effects. Recreational vessels and chartered boat tours will experience minor adverse effects, including Safety Zones, during construction and major maintenance.

27.12.1.4 The assessment considered that temporary disruption and/or reduced access for terrestrial recreational users during the construction phase would not result in significant effects for users of the Wales Coastal Path, other PRoW, cyclists and wildlife watchers. Partial loss of beach access at West Angle Bay meant that minor adverse effects were predicted for some coastal recreational users of the beach; water-based activities here, including swimming, surfing, kayaking etc. were also predicted to result in minor adverse effects.

27.12.1.5 No significant effects are anticipated on tourism and recreation, businesses or chartered boat tours during the operation or decommissioning of the Project.

Socio-economic

27.12.1.6 The Project is expected to support the current supply chain and encourage businesses to relocate to the local area and thus create additional jobs. This will subsequently generate economic benefits within the area. The employment will also generate further demand across the new businesses' supply chains, which in turn creates additional economic growth and jobs.

27.12.1.7 In addition, the construction phase of the Project will support and increase the number of professional roles in the local area and throughout Pembrokeshire. The construction phase and all the works associated with it will support a number of highly skilled, professional roles across a range of activities. These will include specialist engineering roles as well as professional management and supervisory roles during construction. the Project will result in a temporary effect that is minor beneficial at a local level.

27.12.1.8 The increase in direct employment generated by the Project would have a noticeable impact on the size of the energy sector locally, creating new employment opportunities locally. The effect will be of moderate beneficial significance. During its operational phase, the Project will increase the number of specialist operational activities associated with the Project will support a number of highly skilled, professional roles across a range of activities. Operational activities will include maintenance, repair / replacement and specialist engineering tasks and other management and supervisory roles.

27.12.1.9 Overall, the Project will likely provide significant benefits in terms of GVA and jobs created to the local Pembrokeshire economy and wider area, through the provision of direct jobs created on the proposed development or indirect jobs created in the supply chain or through the significant GVA benefits this proposed development will bring.

Human Health

27.12.1.10 Existing health issues in Pembrokeshire include obesity, an ageing population and a reported reduction in happiness and wellbeing levels.

27.12.1.11 Minor beneficial effects on health are therefore anticipated during construction and operation from employment, in addition to benefits to well-being from green energy provision during operation.

27.12.1.12 Current scientific evidence does not identify health effects from exposure to low level electromagnetic fields. However, a population may still retain some element of fear of EMF which can lead to negative health impacts upon a population brought about by anxiety. The technical specifications will require that the onshore export cable and substation will be designed to keep EMF below the public and occupational exposure limits. This includes shielding of onshore cables within a metal sheath that prevents exposure. There will be a few members of the population that may still experience anxiety, although this is anticipated to reduce over time when no health impacts are realised.

27.12.1.13 The Project is considered to have a minor beneficial effect on the health outcomes of the population, due to the increased employment opportunities and income levels. These improvements may improve health by improving incidents of depression, improved mental health and social contact as well as improved household financial stability.

27.12.1.14 Cumulative effects from other projects were assessed and predicted to result in minor effects on tourism and recreation, socioeconomic receptors and human health with the successful implementation of standard and project-specific mitigation in place.

Table 27.29 – Summary of Effects

Description of Effect	Significance of Potential Effect (assuming standard mitigation implemented)		Additional Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Construction					
Tourism and Recreation					
Disruption/reduced access for coastal tourism;	Minor	Adverse	N/A	Minor	Adverse
Disruption / reduced access to local businesses					
Café at West Angle Bay (Wavecrest Café)	Moderate	Adverse	Mitigation outlined within the CEMP. Implement a Communication Strategy so local businesses know when to expect the largest disruptions will occur within the Project timeline; and Site-specific solutions such as the use of temporary screening and noise barriers will be applied.	Minor	Adverse
West Angle Caravan Park	Moderate	Adverse		Minor	Adverse
Castle Farm and Newton Farm Campsites and Caravan Park	Minor	Adverse	N/A	Negligible	-
Café Mor and Pembrokeshire Surf Club Outer Reef School	Negligible	-	N/A	Negligible	-
Disruption/reduced access for terrestrial recreational users;	Minor	Adverse	N/A	Minor	Adverse

Description of Effect	Significance of Potential Effect (assuming standard mitigation implemented)		Additional Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Disruption/reduced access for coastal recreational users;	Minor	Adverse	N/A.	Minor	Adverse
Disruption to Recreational Vessel Activity	Minor	Adverse	N/A	Minor	Adverse
Disruption to Chartered Boat Tours	Minor	Adverse	N/A	Minor	Adverse
Socio-economic					
Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities	Moderate	Beneficial	N/A	Minor	Beneficial
Increase in professional roles and training opportunities	Minor	Beneficial	N/A	Minor	Beneficial
Gross Value Added (GVA) Impacts Supported by Construction Activity	Minor	Beneficial	N/A	Minor	Beneficial
Increased Performance of the Local Renewable Energy Sector	Minor	Beneficial	N/A	Minor	Beneficial
Human Health					
Health effects from direct economic benefits/employment	Minor	Beneficial	N/A	Minor	Beneficial

Description of Effect	Significance of Potential Effect (assuming standard mitigation implemented)		Additional Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Operation					
Tourism and Recreation					
Disruption / reduced access to local businesses	Minor	Adverse	N/A	Minor	Adverse
Disruption to Recreational Vessel Activity	Minor	Adverse	N/A	Minor	Adverse
Disruption to Chartered Boat Tours	Minor	Adverse	N/A	Minor	Adverse
Socio-economic					
Operational Employment, including Supply Chain Impacts	Moderate	Beneficial	N/A	Minor	Beneficial
Increase in professional roles and training opportunities	Minor	Beneficial	N/A	Minor	Beneficial
Gross Value Added (GVA) Impacts Supported by O&M Activity	Minor	Beneficial	N/A	Minor	Beneficial
Increased Performance of the Local Renewable Energy Sector	Minor	Beneficial	N/A	Minor	Beneficial
Human Health					
Electromagnetic Field Impacts	Negligible	-	N/A	Negligible	-
Well-being of Future Generations Goals associated with green energy	Minor	Beneficial	N/A	Minor	Beneficial

Description of Effect	Significance of Potential Effect (assuming standard mitigation implemented)		Additional Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Decommissioning					
Tourism and Recreation					
Disruption/reduced access for coastal tourism;	Negligible	-	N/A	Negligible	-
Disruption/reduced access for terrestrial recreational users;	Negligible	-	N/A	Negligible	-
Disruption / reduced access to local businesses	Negligible	-	N/A	Negligible	-
Disruption to Recreational Vessel Activity	Minor	Adverse	N/A	Minor	Adverse
Disruption to Chartered Boat Tours	Minor	Adverse	N/A	Minor	Adverse
Socio-economic					
Decommissioning Employment including Supply Chain Impacts	Negligible	-	N/A	Negligible	-
Gross Value Added (GVA) Impacts Supported by Decommissioning Activity	Minor	Beneficial	N/A	Minor	Beneficial
Human Health	Minor	Beneficial	N/A	Minor	Beneficial

Table 27.30 – Summary of Cumulative Effects

Receptor	Effect	Cumulative Developments	Significance of Cumulative Effect	
			Significance	Beneficial/ Adverse
Construction				
Tourism and Recreation				
Coastal Tourism Users	Disruption/reduced access for coastal tourism	Project Valorous	Minor	Adverse
Terrestrial recreational users	Disruption/reduced access for terrestrial recreational users	Project Valorous	Minor	Adverse
Local Businesses	Disruption / reduced access to local businesses	Project Valorous	Minor	Adverse
Recreation Vessel users	Disruption to Recreational Vessel Activity	Project Valorous	Minor	Adverse
Local Businesses who provide Wildlife, fishing and diving tours	Disruption to Chartered Boat Tours	Project Valorous	Minor	Adverse
Coastal Tourism users	Disruption/reduced access for coastal tourism	Project Valorous	Minor	Adverse
Socioeconomic				
N/A	Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities	Project Valorous	Minor	Adverse

Receptor	Effect	Cumulative Developments	Significance of Cumulative Effect	
			Significance	Beneficial/ Adverse
Operation				
Tourism and Recreation				
Local businesses	Disruption / reduced access to local businesses	Project Valorous	Minor	Adverse
Recreational vessel users	Disruption to Recreational Vessel Activity	Project Valorous	Minor	Adverse
Local Businesses who provide Wildlife, fishing and diving tours	Disruption to Chartered Boat Tours	Project Valorous	Minor	Adverse
Socioeconomic				
	Direct and indirect employment benefits, including inward migration of economically active people, safeguarding the existing supply chain, new supply chain opportunities	Project Valorous	Minor	Beneficial
	Increase in professional roles and training opportunities	Project Valorous	Minor	Beneficial
	Gross Value Added (GVA) impacts including increased productivity, increased revenue opportunities and economic benefit, reducing Welsh Index of Multiple Deprivation;	Project Valorous	Minor	Beneficial
	Use of green energy, creation of cluster effects and energy security.	Project Valorous	Minor	Beneficial

Receptor	Effect	Cumulative Developments	Significance of Cumulative Effect	
			Significance	**Beneficial/ Adverse**
Human Health				
	Electromagnetic field impacts	Project Valorous	Negligible	-
	Well-being of Future Generations Goals associated with green energy	Project Valorous	Minor	Beneficial
Decommissioning				
The same type and significance of cumulative effects as described for the construction phase would potentially arise if decommissioning of the Project and the other projects in the vicinity occurred simultaneously, resulting in no greater than **minor adverse** effects.				

27.13 References

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