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Economic Statement for Pembroke Dock Infrastructure

Part of the Pembroke Dock Marine project

Prepared on behalf Milford Haven Port Authority

November 2019

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Glossary

Acronym/Initialism	Meaning
AGM	Annual General Meeting
AWC	Articulated Wind Column
BRES	Business Register and Employment Survey
EIA	Environmental Impact Assessment
ERS	Economic Regeneration Strategy
FBC	Full Business Case
FTE	Full-Time Equivalent
GB	Great Britain
GVA	Gross Value Added
HCA	Homes and Communities Agency
HQ	Headquarters
MHPA	Milford Haven Port Authority
LDP	Local Development Plan
LQ	Location Quotient
MEW	Marine Energy Wales
NVQ	National Vocational Qualification
ONS	Office for National Statistics
PCC	Pembrokeshire County Council
PDI	Pembroke Dock Infrastructure
PDM	Pembroke Dock Marine
PEDSAP	Pembrokeshire Economic Development Strategy and Action Plan
PPF	People, Places, Futures
PPW	Planning Policy Wales
R&D	Research and Development
SAC	Special Area of Conservation
SME	Small and Medium size Enterprise
SOC	Standard Occupational Classification
WG	Welsh Government

Executive Summary

- i. This Economic Statement has been prepared on behalf of Milford Haven Port Authority (MHPA). It has been prepared in support of an outline planning application seeking permission for the Pembroke Dock Infrastructure (PDI) project – a mixed office and industrial employment development within the Gate 4 area of Pembroke Port.
- ii. This report assesses the proposed development in alignment with Technical Advice Note (TAN) 23 guidance. It sets out the current policy and economic context, considers possible alternatives to the scheme, quantitatively assesses the economic impacts derived from the scheme, and considers whether there is any special merit associated with the proposed development.
- iii. The report finds there is an absence of suitable alternatives to the scheme, the scheme will deliver significant economic impacts in terms of jobs, wages, and GVA, and the proposed development will contribute to a number of key policy objectives.

Proposed Development

- iv. The Pembroke Dock Marine (PDM) project comprises four separate but interrelated elements that build on an emerging energy cluster around the Milford Haven Waterway: PDI, Marine Energy Test Area (META), Marine Energy Engineering Centre of Excellence (MEECE), and Pembrokeshire Demonstration Zone (PDZ).
- v. PDI is a key element of the PDM project. It will largely involve the redevelopment of the Gate 4 site at Pembroke Port, creating large open plan fabrication and laydown areas and land-to-sea transition space suited to the needs of the marine energy sector (with a primary focus on offshore wind and wave energy technologies). The project will create an operational base in excess of 5.5 ha, equating to 46,529 sq m of work area. It will be delivered by the Port of Milford Haven, with a total cost of around £36.2 million.

Policy Context

- vi. There is a substantial body of legislation, planning and economic development policy, strategy, and research across the spatial hierarchy setting out the key priorities relevant to the proposed development. These documents are concerned with issues around tackling climate change and facilitating growth in the low carbon economy.
- vii. The key objectives present in the existing policy context can be summarised as:
 - Tackling climate change by reducing greenhouse gas emissions that cause climate change, and supporting the transition towards low carbon energy generation
 - Capitalising on the economic opportunities for Wales and Pembrokeshire arising from renewable energy, and supporting the development of innovative business and technology clusters of low carbon activities
 - Ensuring the planning process acts as an enabler for physical development that supports the low carbon energy sector
 - Delivering physical regeneration and employment opportunities to disadvantaged communities

Economic Context

- viii. The Pembrokeshire economy contributed approximately £2.0 billion in GVA to the Welsh economy in 2015, which was around 3.5% of the Welsh economy as a whole that year. Of the 22 local authorities in Wales, Pembrokeshire ranked 14th in total GVA output in 2015.
- ix. Pembrokeshire saw an increase in micro and SME businesses between 2014-2018, although at a very slow rate compared to Wales and the rest of the UK. Average earnings and GVA per job in Pembrokeshire are much lower than the equivalent figures for Wales as a whole, suggesting there is a need to improve the value of employment opportunities within the local authority area.
- x. The energy sector has a strong concentration of business representation in Pembrokeshire, and is a major economic factor, contributing around £92 million in wages. However, the sector in Pembrokeshire is heavily biased towards oil and natural gas.

Baseline Conditions

- xi. Existing units on the application site are currently occupied by around 20 businesses, individuals, and public sector organisations across a range of economic activities. Based on MHPA estimates, the site as currently constituted supports 119 FTE jobs. This level of employment supports around £3.2 million in wages, and £8.0 million in GVA on an annual basis. Based on indicative employment densities, the site currently has the potential to support 236 FTE jobs. This level of employment would support around £6.3 million in wages, and £15.9 million in GVA on an annual basis. The disparity between the ‘on-the-ground’ MHPA estimates and the ‘potential’, density-based HJA estimates points towards an under-utilisation of premises under current occupancy conditions.

Alternatives

- xii. There are a handful of other major ports in Wales that would have the infrastructure to accommodate the level of economic activity associated with the proposed development. However, the only location in Wales with the environmental conditions to support the development and deployment of wave and floating offshore wind energy technologies is the Pembrokeshire coastline near the Milford Haven Waterway.
- xiii. The PDI project offers a singular opportunity to support the marine energy sector in Wales. Pembrokeshire’s combination of environmental conditions and existing energy sector infrastructure (including test sites) and associated supply chain activity makes it unique within Wales. These conditions are expected to lead to agglomeration benefits as the PDI project becomes operational.
- xiv. The significant level of investment in wave and floating offshore wind energy technologies in Pembrokeshire is highly unlikely to occur should the application for the proposed development be rejected.

Economic Impact

- xv. The assessment of economic impacts indicates the proposed development will deliver significant economic impacts in terms of jobs, wages, and GVA.
- xvi. In gross direct terms, it is estimated the construction phase of the development will generate 68–101 person years of employment for Pembrokeshire, supporting £2.1 million–£3.1 million in wages and £5.4

million–£8.1 million in GVA annually for the estimated 2–3 year construction phase. In net additional terms, it is estimated the construction phase of the development will generate 65–98 person years of employment for Pembrokeshire, supporting £2.0 million–£3.0 million in wages and £5.2 million–£7.8 million in GVA annually for the estimated 2–3 year construction phase.

- xvii. In gross direct terms, it is estimated the operational phase of the development will generate 453–1,219 FTE jobs, supporting £14.4 million–£40.6 million in wages and £26.6 million–£67.7 million in GVA annually. In net additional terms, it is estimated the operational phase of the development will generate 288–975 FTE jobs for Pembrokeshire, supporting £10.1 million–£33.6 million in wages and £16.7 million–£53.6 million in GVA annually.

Special Merit

- xviii. The proposed development will build on an existing energy cluster that has grown around the Pembroke Port area, with the aim of developing a world class centre for marine energy. It will contribute towards Pembroke Port's offering of location, knowledge and expertise, and supply chain and connectivity benefits, and will help to nurture developing marine energy technologies.
- xix. It is reasonable to assume the PDM project as a whole will have an agglomerative effect on activity in the marine energy industry, given how specialised the sector is, and how limited testing sites are for the sector's technology. This emphasises the need for sufficient employment floorspace to accommodate this activity, and the proposed development will deliver this floorspace.
- xx. The current reliance of Pembrokeshire's energy sector on non-renewable sources presents the likelihood of future job losses as these energy sources come under an increased regulatory burden. The opportunity for sector diversification delivered by the proposed development would ensure that local labour markets are buffered from future job losses in non-renewable energy activities.
- xxi. The redevelopment of Pembroke Port Gate 4 will contribute to each of the key policy objectives identified from the relevant documentation:
- Tackling climate change by reducing greenhouse gas emissions that cause climate change, and supporting the transition towards low carbon energy generation
 - Capitalising on the economic opportunities for Wales and Pembrokeshire arising from renewable energy, and supporting the development of innovative business and technology clusters of low carbon activities
 - Ensuring the planning process acts as an enabler for physical development that supports the low carbon energy sector
 - Delivering physical regeneration and employment opportunities to disadvantaged communities

1 Introduction

1.0.1 This Economic Statement has been prepared on behalf of Milford Haven Port Authority (MHPA). It has been prepared in support of an outline planning application seeking permission for a mixed office and industrial employment development within the Gate 4 area of Pembroke Port. This has been prepared in line with guidance set out in Welsh Government, Technical Advice Note (TAN) 23: Economic Development (February 2014).

1.1 Proposed Development

1.1.1 The Pembroke Dock Marine (PDM) project comprises four separate but interrelated elements that build on an existing energy cluster around the Milford Haven Waterway.

Figure 1.1 – Pembroke Dock Marine project elements

Project element	Full Business Case (FBC) headline summary
Pembroke Dock Infrastructure (PDI)	Reshaping the physical infrastructure of Pembroke Port Gate 4, to ensure maximum operational efficiencies for UK industry.
Marine Energy Test Area (META)	Creating pre-consented and licensed zones within the Milford Haven Waterway for component and scaled device testing.
Marine Energy Engineering Centre of Excellence (MEECE)	Establishing a centre for research and innovation.
Pembrokeshire Demonstration Zone (PDZ)	Delivering the consenting for a Demonstration Zone for the testing of full-scale arrays for both wave and floating wind technologies.

1.1.2 Pembroke Dock Infrastructure (PDI) is one of the four elements of the PDM project. This will largely involve the redevelopment of the Gate 4 site at Pembroke Port, creating large open plan fabrication and laydown areas and land-to-sea transition space suited to the needs of the marine energy sector (with a primary focus on offshore wind and wave energy technologies). The project will create an operational base in excess of 5.5 ha, equating to 46,529 sq m of work area. It will be delivered by the Port of Milford Haven, with a total cost of around £36.2 million.

1.1.3 The PDI Draft Proposed Masterplan (Revision M) sets out the following deliverables as part of the physical reshaping of Gate 4¹:

- High quality fabrication facility
- High bay ship repair and fabrication facility
- Slipway and transition area
- Light assembly and maintenance facility

¹ The analysis contained within this report differs from that set out within the Pembroke Dock Marine Full Business Case (Working Draft Report), primarily as a result of the narrower project parameters relating to this Economic Statement. This report considers only the proposed redevelopment within the Gate 4 area and excludes additional development proposals within other parts of the port or other elements of the Pembroke Dock Marine project.

- Batching plant
- Employee car park

1.2 Report Structure

1.2.1 The remainder of this report is structured as follows:

- Chapter 2 summarises the national, sub-regional, and local context in terms of legislation, planning and economic development policy, strategy and research setting out the key priorities relevant to the proposed development.
- Chapter 3 considers the existing economic conditions in the Pembrokeshire local authority area based on secondary data sources.
- Chapter 4 considers possible alternative locations where the investment associated with the proposed development could be directed should the application for the redevelopment of Gate 4 be rejected.
- Chapter 5 considers the economic impacts arising from the construction of the proposed development. This is considered separately to the operational phase impacts given the time-limited nature of the construction and engineering works.
- Chapter 6 considers the economic impacts arising from the on-going operation of the proposed development, taking into consideration the range of direct on-site impacts including jobs, wages, and GVA arising from activities taking place within the employment premises delivered as part of the scheme.
- Chapter 7 considers whether the proposed development will make a special contribution to policy objectives.

2 Policy and Legislative Context

- 2.0.1 This chapter summarises the national, sub-regional, and local context in terms of legislation, planning and economic development policy, strategy, and research setting out the key priorities relevant to the proposed development.
- 2.0.2 The following documentation is considered in this chapter:

Figure 2.1 – Documentation considered as part of setting out current policy and legislative context

Title	Year	Source(s)
UK		
Climate Change Act 2008	2008	HM Government
UK Industrial Strategy	2017	HM Government
The Clean Growth Strategy: Leading the way to a low carbon future	2017	HM Government
Wales		
Well-being of Future Generations (Wales) Act 2015	2015	Welsh Government
Prosperity for All	2017	Welsh Government
Prosperity for All: Economic Action Plan	2018	Welsh Government
Planning Policy Wales	2018	Welsh Government
Technical Advice Note 23: Economic Development (2014)	2014	Welsh Government
People, Places, Futures – The Wales Spatial Plan	2008	Welsh Assembly Government
Energy Wales: A Low Carbon Transition	2012	Welsh Government
Sectors Delivery Plan	2017	Welsh Government
Swansea Bay City Region and Pembrokeshire		
Swansea Bay City Region Economic Regeneration Strategy 2013–2030	2017	Swansea Council, Neath Port Talbot Council, Carmarthenshire County Council, Pembrokeshire County Council
Swansea Bay City Region City Deal	2017	Swansea Council, Neath Port Talbot Council, Carmarthenshire County Council, Pembrokeshire County Council
Pembrokeshire County Council Local Development Plan: Planning Pembrokeshire’s Future	2013	Pembrokeshire County Council
Pembrokeshire Economic Development Strategy and Action Plan 2017–2022	2016	Pembrokeshire County Council

2.1 UK

Climate Change Act 2008

- 2.1.1 Part of the Climate Change Act was to provide the legislative pathway for significantly reducing UK greenhouse gas emissions. It commits the UK Government to reduce greenhouse gas emissions by at least 80% of 1990 levels by 2050.
- 2.1.2 The devolved administrations of Wales, Scotland, and Northern Ireland account for around 20% of the UK’s emissions, and are included in the targets.

UK Industrial Strategy

2.1.3 The UK Industrial Strategy sets out the long-term policy by which the UK Government plans to boost the productivity performance of the UK economy. It sets an overarching context within which economic development takes place, and therefore is relevant to a Welsh context. One of the five ‘foundations of productivity’ identified is Infrastructure, and one of the four Grand Challenges to put the UK at the forefront of industry relates to Clean Growth – maximising ‘the advantages for UK industry from the global shift to clean growth’. Key policies to boost innovation include:

- Increased levels of Research and Development (R&D) investment;
- An increase in the rate of R&D tax credit to 12%;
- A £725 million investment in new Industrial Strategy Challenge Fund programmes;
- Sector Deals in life sciences, construction, Artificial Intelligence, and the auto industry; and
- Driving over £20 billion of investment in innovative and high potential businesses.

The Clean Growth Strategy: Leading the way to a low carbon future

2.1.4 The Clean Growth Strategy has been established in line with the UK Industrial Strategy to outline how the economic growth promoted by the Industrial Strategy will protect and hopefully improve environmental conditions. The Clean Growth Strategy sets out a comprehensive set of policies and proposals that aim to accelerate the proliferation of ‘clean growth’ – increased economic growth with decreased emissions.

2.1.5 One of the key policies and proposals in the strategy is to deliver clean, smart, and flexible power. The strategy sets out a range of funding commitments to achieve this.

2.1.6 One commitment is to phase out the use of unabated coal to produce electricity by 2025. To make up the difference in energy production, the strategy commits the UK Government to improving the route to market for renewable energy technologies. This will be achieved investing up to £557 million in Contract for Difference auctions, and a Sector Deal for offshore wind.

2.1.7 The strategy sees innovation as a key means of capitalising on the UK’s competitive advantage in the energy sector. Innovation in renewable technologies is highlighted as a key funding commitment as part of delivering clean, smart, and flexible power. The strategy commits the UK Government to £177 million of investment to reduce the cost of renewables, including innovation in offshore renewable energy technologies.

2.2 Wales

Well-being of Future Generations Act (Wales)

2.2.1 In the Well-being of Future Generations (Wales) Act 2015, the Welsh Government (WG) commits to the aim of delivering ‘sustainable development’, which the Act defines as “the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals.”

2.2.2 As part of its well-being goals, the Act sets out the goal of promoting a ‘prosperous’ Wales. This means working towards “an innovative, productive and low carbon society 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.”

2.2.3 Another of the well-being goals relates to achieving a ‘resilient’ Wales. This means striving for a “nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).”

2.2.4 The well-being goals also promote the importance of a ‘globally responsible’ Wales. This requires action that aims to improve “the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being.”

Prosperity for All

2.2.5 Prosperity for All takes the key commitments from the WG Programme for Government, and places them in a long-term context, setting out how they fit within the work of the Welsh public service.

2.2.6 There are a number of important commitments that fall under the strategy’s first aim to provide ‘prosperous and secure’ economic growth, including:

- Use business support to build capacity and innovation within home grown businesses along local supply chains;
- Harness the opportunities of major infrastructure projects, such as Wylfa Newydd and Swansea Bay Tidal Lagoon;
- Provide more effective support for the development of local supply chains and clusters, so that economic value is retained locally, and more employment opportunities are created closer to home; and
- Establish a bespoke infrastructure consenting process that is responsive to business and community needs, to support sustainable economic growth, and to decarbonise Wales’ energy supply.

2.2.7 One of the main objectives set within this first aim is to ‘drive sustainable growth and combat climate change’. One aspect of this objective is to capitalise on the economic opportunities of Wales’ natural resources by supporting low carbon energy generation and greater use of renewable energy sources.

Prosperity for All: Economic Action Plan

2.2.8 WG has developed an Economic Action Plan in line with the Prosperity for All national strategy. It outlines the actions WG will take to promote economic growth in Wales. The action plan also highlights a number of ways in which WG can respond to the challenges facing the Welsh economy.

2.2.9 One area of focus is on the need for innovation and skills in response to the demand for knowledge-based activities to underpin economic growth.

2.2.10 Another response advocated by the plan is tackling climate change, as ‘the shift towards a low-carbon future offers huge opportunities for [the] economy to diversify and grow’. WG wants Wales to capitalise on the opportunities arising from the shift away from fossil fuels to a low carbon economy. As part of this response, WG is committed to supporting businesses that provide growth opportunities in this

transitional process, specifically developers, regulators and energy infrastructure providers that can accelerate the deployment of low carbon energy generation.

- 2.2.11 This approach will help to meet the target of 70% of electricity consumed in Wales being from Welsh renewable sources by 2030.

Planning Policy Wales (PPW)

- 2.2.12 WG defines economic development as “...the development of land and buildings for activities that generate sustainable long term prosperity, jobs and incomes.” Land uses that can be considered to deliver economic growth include traditional employment land uses such as B1a office, B1b research and development, B1c and B2 industrial, and B8 warehousing.

- 2.2.13 A number of key factors should be considered when assessing the sustainability benefits of a development, including:

- The numbers and types of long term jobs expected to be created or retained;
- How the development will help redress economic disadvantage or support regeneration priorities, for example by enhancing local employment opportunities;
- The contribution the development would make to achieving wider strategies, for example the growth or regeneration of certain areas; and
- How the proposal would support the achievement of a more prosperous, low carbon, innovative and resource efficient Wales.

- 2.2.14 PPW sets an expectation for planning authorities to develop an evidence base to inform the development of renewable and low carbon energy policies. It also sets out the need for planning authorities to:

- Take into account the contribution their area can make towards the reduction of carbon emission and increasing renewable and low carbon energy production;
- Identify the accessible and deliverable renewable energy resource potential for their area, and consider the likely utilisation of this resource over the plan period;
- Assess the social, economic, environmental and cultural impacts and opportunities arising from renewable and low carbon energy development;
- Engage with the renewable energy development industry and consider the deliverability of schemes; and
- Consider local and strategic priorities for renewable energy.

- 2.2.15 PPW stipulates that local planning authorities should support the development of innovative business and technology clusters of low carbon activities. Planning authorities are also encouraged to look favourably on proposals for new low carbon energy generation.

Technical Advice Note 23: Economic Development (2014)

- 2.2.16 The Welsh Government provide a number of technical advice notes that provide detailed planning guidance. These notes are taken into account during the preparation of local development plans by local authorities. Technical Advice Note (TAN) 23 provides guidance on the role of land use planning in promoting economic growth. It takes a ‘whole economy’ view of sustainable economic growth – it

does not assume that economic objectives are necessarily in conflict with social and environmental ones, with physical development able to simultaneously contribute to these different dimensions of sustainability. TAN 23 recognises the importance of developing B1–B8 land uses as part of this process.

- 2.2.17 There are three primary questions that TAN 23 requires planning authorities to ask when considering a planning application.
- 2.2.18 Firstly, if the application is refused, is it likely the demand could be met on an alternative site where development would cause less harm? Alternative locations will not necessarily be confined to the same local authority. If the subject site does not possess any unique characteristics, it should be possible to find alternative locations nearby. Where a subject site possesses distinct advantages, it may be necessary to look much further afield for suitable alternative locations.
- 2.2.19 Secondly, how many direct jobs will be based at the site? TAN 23 requires consideration of the approximate measure of a development’s contribution to the local economy. Such an assessment can also include indirect job creation.
- 2.2.20 Thirdly, would the development make any special contribution to policy objectives? This makes it necessary to consider current policy objectives. TAN 23 specifically references PPW advice that the planning system should particularly support the low-carbon economy and innovative business and technology clusters. Developments that contribute positively to these categories count as making special policy contributions.

People, Places, Futures – The Wales Spatial Plan

- 2.2.21 Note: the Welsh Planning Directorate are currently producing a National Development Framework for Wales, which will set out a 20-year land use framework for Wales and will replace the current Wales Spatial Plan when published.
- 2.2.22 People, Places, Futures (PPF) guidance states that a sustainable future “depends on the vitality of our communities as attractive places to live and work. We need to reduce inequalities between communities whilst retaining their character and distinctiveness” (para 10).
- 2.2.23 The Plan aims to facilitate the development of initiatives which “tackle child poverty, employability, skills deficits and economic inactivity, as well as improving the environment, health and wellbeing, and community safety” (para 10.1).
- 2.2.24 Pembrokeshire is included in PPF as one of six Spatial Plan Areas. There are a number of key strategic priorities set out in PPF to achieve the vision of ‘a network of strong communities supported by a robust, sustainable, diverse high value-adding economy underpinned by the Area’s unique environment, maritime access and internationally important energy and tourism opportunities.’ One of these strategic priorities is focused on developing a more diverse, entrepreneurial knowledge-based economy, working closely with higher and further education institutions, indigenous businesses and multinational companies, to increase wage levels and create enough well-paid jobs to establish a critical mass that will both attract people with higher skills and reduce the out-migration of young skilled people. Energy and the environment will be critical to achieving success.

2.2.25 Pembroke and Pembroke Dock is included as one of three strategic hubs that perform an important regional role, making it an important focus for future investment. The area is anticipated to see employment growth linked to further development of the port and marina.

Energy Wales: A Low Carbon Transition

2.2.26 *Energy Wales*, the WG energy policy, sets out how Wales will transition from fossil fuel based energy generation towards a broader energy mix including renewable and low carbon sources.

2.2.27 The policy highlights three key priority areas in which WG intends to focus its efforts.

2.2.28 Firstly, WG intends to provide a clear and consistent policy framework for investors, regulators and decision-makers, as well as appropriate infrastructure investments.

2.2.29 Secondly, WG intends to ensure the transition to a low carbon energy mix will deliver long term economic growth to Welsh communities in terms of jobs, wealth, and investment.

2.2.30 Thirdly, WG intends to support innovation, research, development, and commercialisation in the areas of the energy market that offer long-term growth potential in Wales. By focusing on areas of competitive advantage, WG hopes that clusters of knowledge, goods, and services will emerge that can be exported internationally.

2.2.31 WG outlines a number of commitments in *Energy Wales* that align with these key priorities, including:

- Focus on development of low carbon energy sources.
- Support the most vulnerable Welsh communities to ensure that poorer households are not disproportionately impacted by the transition away from non-renewable energy sources.

Sectors Delivery Plan

2.2.32 The Welsh Government's Department for Business, Enterprise, Technology and Science has identified nine sectors which have the potential to be, or already are, key to the Welsh economy.

2.2.33 One of the nine key sectors is Energy and Environment. Transitioning towards a low carbon economy is seen as an opportunity for Welsh companies to gain a competitive advantage and benefit from rapidly growing markets.

2.2.34 The Plan sets out a number of short, medium, and long term priorities for the sector, including to:

- Develop proposals for projects, identifying funding requirements and formulating case-by-case propositions **to immediately target marine energy with particular emphasis on unlocking barriers for the sector** (short term)
- Secure commitment from funders for commercialisation of projects and knowledge transfer for specifically identified projects (short term)
- Conduct specific technical analysis of areas needed to grow the sector and deliver the commitments made in the First Minister's Energy Wales Policy Statement and objectives set by the Energy Programme Board, including **developing supply chain opportunities across the whole sector; sector infrastructure, including ports sites and premises;** trade opportunities; and marketing (long term)

- **Work with stakeholders, developers and local authorities on developing a proposition to support future marine energy in Wales and unlock the potential from our seas (long term)**

2.3 Swansea Bay City Region and Pembrokeshire

Swansea Bay City Region Economic Regeneration Strategy 2013–2030

- 2.3.1 There are a number of economic challenges highlighted in the Economic Regeneration Strategy (ERS) in the areas of business starts, skills, employment, and infrastructure. One of the major opportunities noted in the ERS is the strength of key sectors that possess “...significant potential for growth...” Two of these key sectors are the energy industry and advanced engineering.
- 2.3.2 Strategic Aim 1 is focused on business growth, retention, and specialisation. The aim is to develop a large, vibrant and increasingly specialised business base by attracting, developing, and retaining a larger stock of sustainable, high-value and productive businesses.
- 2.3.3 Strategic Aim 4 is focused on the knowledge economy and innovation. The ERS acknowledges the need to specialise and focus on the sectors that display the greatest potential for growth and building a critical mass of successful businesses.
- 2.3.4 Strategic Aim 5 is focused on ‘distinctive places and competitive infrastructures.’ Part of this aim is to co-ordinate spatial planning to ensure targeted development of land, property, and infrastructure. This involves delivering substantial employment and investment opportunities that will come about from the successful development of strategic employment sites, with a focus on knowledge-based and innovation-driven business activity.

Swansea Bay City Region City Deal

- 2.3.5 The City Deal is joint commitment by the Welsh and UK Governments to invest up to £241 million on interventions that will support economic growth. The intent is to increase the number of businesses and employment opportunities in high value activities. The City Deal sets out a number of investment themes around which interventions will be focused:
- Economic acceleration: support for digital infrastructure, the creative industries, business start-ups, and the development of the skills to match growth ambitions.
 - Life sciences and wellbeing: expansion of research and innovation infrastructure.
 - **Energy: place Swansea Bay City Region at the forefront of energy innovation by establishing a centre of excellence to develop and exploit opportunities in marine energy and other technologies.**
 - Smart manufacturing: aligning digital assets and R&D provision to improve products, services, and processes.

Pembrokeshire County Council Local Development Plan: Planning Pembrokeshire’s Future

- 2.3.6 The Local Development Plan (LDP) establishes a vision and policy context for directing development in Pembrokeshire between 2013–2021. Although it deals primarily with land use, it is a useful guide as to the direction of travel of planning policy in the County.
- 2.3.7 The LDP highlights a number of issues facing the Pembrokeshire economy, including:

- Lack of employment opportunities in rural areas;
- Loss of skilled young people from the County; and
- Need to expand industrial/port activities.

2.3.8 The Plan supports the potential for Pembrokeshire to develop its economy in areas such as renewable energy.

2.3.9 Under Objective E – Building on the County’s strategic location for energy and port related development – the Plan includes a sub objective to ‘ensure sufficient land is available for port and energy/renewable energy technologies both for research and for delivery’.

2.3.10 General Policy GN.4 commits to supporting developments that ‘enable the supply of renewable energy through environmentally acceptable solutions’, stating that Pembrokeshire has ‘significant’ potential to provide energy from all renewable sources and to build on its role as an ‘energy centre’.

Pembrokeshire Economic Development Strategy and Action Plan 2017–2022

2.3.11 The Pembrokeshire Economic Development Strategy and Action Plan (PEDSAP) builds on economic development and regeneration policies at Welsh Government, Swansea Bay City Region, and Pembrokeshire levels.

2.3.12 PEDSAP sets out a framework for improving economic outcomes for residents and businesses in Pembrokeshire, with the aim of coordinating interventions between public, private, and third sector stakeholders.

2.3.13 The vision of the strategy is to “...make the County an economically competitive, productive and prosperous place with a sustainable economy supporting incomes and employment and economic growth underpinned by successful new enterprises, existing businesses and those attracted to the County.”

2.3.14 The strategy highlights a number of strengths and opportunities in Pembrokeshire’s economy, including:

- There are strong local clusters of employment in energy and marine.
- **The expansion of the renewable energy sector in Pembrokeshire over recent years is providing local residents with new employment opportunities.**
- **Coastal locations with strong tidal flow, and sites suitable for wave power generation. Combined with the availability of high-voltage power transmission, this presents an opportunity for Pembrokeshire to become a marine energy hub.**
- **Pembrokeshire also has the potential to be a centre of excellence in research, technology, and innovation in the marine energy sector.**
- Strategically developing knowledge-based economic activities can bring about increased levels of innovation.

2.3.15 PEDSAP also highlights a number of threats to economic growth in Pembrokeshire, including:

- Employment in Pembrokeshire’s energy sector is currently concentrated in a small number of large companies, exposing the labour market to vulnerabilities should any of these firms fail.

- **Regulatory burdens associated with a transition towards a low-carbon energy mix and falls in oil and gas prices are having adverse impacts on the profitability of Pembrokeshire's biggest energy employers, which are focused on non-renewable energy sources.**

2.3.16 The strategy steers policy towards placing an emphasis on sectors and clusters that already have a large and highly concentrated presence in Pembrokeshire, demonstrating competitive advantage and scope for diversification. These sectors are identified as:

- **Energy and renewables (including wave and tidal energy)**
- Tourism and visitor economy (including accommodation and food services, and the arts, entertainment and recreation sectors)
- The rural economy.

2.3.17 One of the key policy themes in the strategy for achieving growth in these sectors is 'improving sites, premises, and physical regeneration'. This policy theme states:

"The provision of adequate sites and premises for employment uses, and in particular for the priority sectors is critical to allow sustained economic development and growth. Generally, in spite of the level of investment that has been made much of the commercial and retail property is in need of upgrading..." (p44)

2.3.18 The strategy also highlights the lack of commercial floorspace available to meet the need of the growing renewable energy sector:

"There are insufficient larger units above 10,000 sq.ft. These could secure a 'step-change' in inward investment projects, companies within the supply chains of the main anchor occupiers and/or emerging technologies within the energy sector. At the larger end of the industrial market, the available floorspace is of poorer quality, being of dated specification." (p44)

2.3.19 The policy theme concludes by asserting the need for an increase in the "supply of sites and quality units with a range of sizes for start-ups, existing indigenous businesses and inward investors."

2.4 Summary

2.4.1 This chapter has considered the national, sub-regional, and local context in terms of legislation, planning and economic development policy, strategy, and research relevant to the proposed development.

2.4.2 The key themes present in the legislation and policy documents discussed in this chapter are summarised in Figure 2.2 below.

Figure 2.2 – Summary of key legislation and policy themes

Theme	Source(s)
Tackling climate change by reducing greenhouse gas emissions that cause climate change, and supporting the transition towards low carbon energy generation	<ul style="list-style-type: none"> • Climate Change Act 2008 (UK) • The Clean Growth Strategy (UK) • Well-being of Future Generations Act (Wales) • Prosperity for All: Economic Action Plan (Wales) • Planning Policy Wales • Energy Wales: A Low Carbon Transition
Capitalising on the economic opportunities for Wales and Pembrokeshire arising from renewable energy, and supporting the development of innovative business and technology clusters of low carbon activities	<ul style="list-style-type: none"> • Prosperity for All (Wales) • People, Places, Futures – The Wales Spatial Plan • Sectors Delivery Plan • Swansea Bay City Region Economic Regeneration Strategy • Swansea Bay City Region City Deal • Pembrokeshire County Council Local Development Plan • Pembrokeshire Economic Development Strategy and Action Plan
Ensuring the planning process acts as an enabler for physical development that supports the low carbon energy sector	<ul style="list-style-type: none"> • Prosperity for All (Wales) • Planning Policy Wales • Sectors Delivery Plan • Swansea Bay City Region Economic Regeneration Strategy • Pembrokeshire County Council Local Development Plan
Delivering physical regeneration and employment opportunities to disadvantaged communities	<ul style="list-style-type: none"> • Well-being of Future Generations Act (Wales) • Planning Policy Wales • People, Places, Futures – The Wales Spatial Plan • Energy Wales: A Low Carbon Transition

3 Economic Baseline Conditions

- 3.0.1 This chapter considers the existing economic conditions in Pembrokeshire local authority based on secondary data sources.
- 3.0.2 Information on the socio-economic baseline conditions within Pembrokeshire has been collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 3.1 below.

Table 3.1 – Summary of key desktop sources

Title	Source	Year
An analysis of economic activity dependent on the Milford Haven Waterway	MHPA	2012
Annual Population Survey	ONS	2018
Annual Survey of Hours and Earnings	ONS	2018
Business Demography	ONS	2017
Business Register and Employment Survey	ONS	2018
Census of Population	ONS	2011
Jobs Density	ONS	2018
Jobseekers Allowance	ONS	2018
Local authority population projections	Statistics Wales	2014-based
Mid year population estimates	ONS	2018
Regional Gross Value Added	ONS	2018
Regional Gross Value Added by Local Authority	ONS	2015
State of the Sector 2019: Economic Benefits for Wales	MEW	2019
STEAM Final Trend Report for 2004-2015	PCC	2015
UK Business Counts	ONS	2018

3.1 GVA

- 3.1.1 The Pembrokeshire economy contributed approximately £2.0 billion in GVA to the Welsh economy in 2015², which was around 3.5% of the Welsh economy as a whole that year (ONS). Of the 22 local authorities in Wales, Pembrokeshire ranked 14th in total GVA output.

3.2 Population

- 3.2.1 The Office for National Statistics (ONS) Mid Year Population Estimates report a resident population of 124,700 persons in Pembrokeshire.
- 3.2.2 The population of Pembrokeshire has increased by 4.3% over the ten-year period 2007-17 (Mid Year Estimates, ONS).

² Regional Gross Value Added (Income Approach) by Local Authority in the UK, 1997–2015 (ONS)

3.3 Industry

3.3.1 The Pembrokeshire economy is dominated by micro businesses. This is not too dissimilar to the business base of Wales and the UK as a whole, although it is slightly more pronounced in Pembrokeshire.

Figure 3.1 – Business base by business size

Business size	Pembrokeshire	Wales	UK
Micro (0–9 employees)	90%	89%	89%
SME (10–249 employees)	10%	11%	10%
Large (250+ employees)	0.1%	0.3%	0.4%

Source: UK Business Counts, ONS (Note – figures may not sum due to rounding)

3.3.2 The number of micro and small-medium size enterprises (SME) in Pembrokeshire increased between 2014 and 2018 (UK Business Counts, ONS). It is difficult to make an accurate assessment of the change in the number of large businesses in Pembrokeshire as ONS figures are rounded to the nearest five. However, the data shows there are very few.

Table 3.2 – Change in size band distribution of businesses 2014–2018, Pembrokeshire

Business size	2014	2018
Micro (0–9 employees)	4,715	5,005
SME (10–249 employees)	505	575
Large (250+ employees)	5	5

Source: UK Business Counts, ONS

3.3.3 The contribution of new enterprises ('births') to the overall business base in Pembrokeshire decreased slightly between 2013 and 2017, and the share of business 'deaths' as a proportion of Pembrokeshire's business base increased slightly over the same period (Business Demography, ONS). In 2018 business deaths exceeded business births.

Table 3.3 – Change in business 'births' and 'deaths' 2013–2017, Pembrokeshire

	2013	2018
Business births (total)	465	410
Business births (% share of business base)	10.4%	8.9%
Business deaths (total)	375	430
Business deaths (% share of business base)	8.4%	9.3%

Source: Business Demography, ONS

3.3.4 Overall, Pembrokeshire's business base is less 'active' when compared to the picture across Wales and the UK. The number of businesses in Pembrokeshire increased by 3.3% between 2013–17, compared to an increase of 14.6% in Wales and 19.5% in the UK as a whole. Business births in Wales increased over the same period, both in absolute terms (+2,800) and as a share of the business base (+1.1%). At the UK level, business births increased (+35,610) but decreased slightly as a share of the business base (–1.0%).

3.3.5 The survival rate of new enterprises in Pembrokeshire is higher than the Wales average (Business Demography, ONS).

Table 3.4 – Business survival rates based on 2012 business births

Business size	1-year	2-year	3-year	4-year	5-year
Pembrokeshire	93%	81%	67%	58%	47%
Wales	92%	75%	60%	51%	44%

Source: Business Demography, ONS

3.4 Employment and economic activity

- 3.4.1 The economic activity rate in Pembrokeshire is 76.0%. This is lower than the Wales average (76.2%) and GB average (78.5%) (ONS Annual Population Survey, Oct 2017 - Sep 2018).
- 3.4.2 The employment rate is measured at 73.5% compared to Wales 72.6% and GB 75.1%. Self employment is very high in Pembrokeshire, at 14.1% compared to 9.5% in Wales and 10.6% in GB. Unemployment is low at 3.8% compared to 4.6% in Wales and 4.2% GB. (all figures ONS Annual Population Survey, 2018).
- 3.4.3 The most comprehensive measure of jobs in an area is the ONS Jobs Density measure. This indicates 55,000 jobs in Pembrokeshire in 2017.
- 3.4.4 Table 3.5 shows the share of Pembrokeshire residents employed in occupation categories 1-3 (higher order occupations) is much lower than the Wales average (Annual Population Survey, ONS, 2019). The number employed in occupation categories 4-6 (middle order occupations) is much higher than the Wales average. The number employed in occupation categories 7-9 (lower order occupations) is very similar to the Wales average.

Table 3.5 – Resident employment by SOC, Pembrokeshire (2017)

Occupation	Total employment	Share of employment (Pembs)	Share of employment (Wales)
1: Managers, directors and senior officials	5,800	10.4%	9.8%
2: Professional occupations	8,700	15.6%	18.4%
3: Associate prof & tech occupations	6,000	10.7%	13.4%
4: Administrative and secretarial occupations	5,200	9.3%	9.9%
5: Skilled trades occupations	7,900	14.2%	11.5%
6: Caring, leisure and other service occupations	6,800	12.3%	9.4%
7: Sales and customer service occupations	4,100	7.3%	8.1%
8: Process, plant and machine operatives	3,800	6.9%	7.7%
9: Elementary occupations	7,300	13.2%	11.2%

Source: HJA analysis based on Annual Population Survey, ONS

- 3.4.5 The proportion of the 16-64 population with the highest level of qualifications (NVQ4+) is reported at 30.7% compared to 35.1% in Wales and 38.6% Great Britain (GB) (ONS Annual Population Survey).
- 3.4.6 42.5% of jobs in Pembrokeshire are part time (ONS, BRES). This compares to 34.7% in Wales and 32.5% GB.

3.4.7 Whilst the employment and economic activity rates in Pembrokeshire indicate labour market participation levels in Pembrokeshire are at or above the Welsh average, this is based on high levels of self employment and part time working. The occupational and skills data shows a low concentration of high skilled, higher order activity.

3.5 Sector Profile

3.5.1 Location Quotients (LQ) show the concentration of sectors in an area, relative to the UK economy. An LQ of 1 indicates the sector has an equal concentration to the UK, an LQ>1 shows a relative concentration of activity in that sector. An LQ<1 shows an under-representation of that sector.

3.5.2 Table 3.6 **Error! Reference source not found.** reports the number of businesses and the equivalent LQ of each sector in Pembrokeshire. This shows that the Energy and Tourism (proxy based on Accommodation and food services, and Arts, entertainment and recreation) sectors are well represented in the Pembrokeshire economy (UK Business Counts, ONS).

3.5.3 Table 3.6 reports the employment sectoral profile in Pembrokeshire. The tourism sector, based on a proxy comprising the 'Accommodation and food services' sector and 'Arts, entertainment and recreation' sector, is very well represented in Pembrokeshire in terms of employment (Business Register and Employment Survey (BRES), ONS, 2018). The 'Energy' sector's LQ falls below 1.

Table 3.6 – Total business LQ by sector, Pembrokeshire (2018)

Sector	Total businesses	LQ	Total employment	LQ
A : Agriculture, forestry and fishing	1,385	1.85	6,000	2.95
B : Mining and quarrying	5	1.32	125	1.97
C : Manufacturing	300	0.96	2,000	0.40
D : Energy	15	1.43	225	0.89
E : Water supply	20	0.92	350	0.80
F : Construction	620	0.89	2,500	1.17
G : Wholesale and retail trade	725	0.84	8,000	1.22
H : Transportation and storage	140	0.67	1,750	1.15
I : Accommodation and food services	650	1.40	7,000	1.93
J : Information and communication	130	0.54	1,250	0.66
K : Financial and insurance activities	60	0.61	300	0.28
L : Real estate activities	90	0.60	500	0.81
M : Professional, scientific and technical activities	500	0.77	2,000	0.80
N : Administrative and support service activities	345	0.83	1,500	0.47
O : Public administration and defence	40	1.56	2,000	0.63
P : Education	55	0.78	4,000	0.90
Q : Human health and social work activities	185	0.77	7,000	0.96
R : Arts, entertainment and recreation	145	1.19	900	1.46
Total	5,585		48,000	

Source: HJA analysis based on UK Business Counts and BRES, both ONS (Note – figures may not sum due to rounding)

Energy sector

- 3.5.4 The energy sector in Pembrokeshire is heavily biased towards oil and gas. The energy sector in Pembrokeshire accounts for around £92 million in wages per annum (Milford Haven Port Authority (MHPA), 2012). Of the £323.7 million of GVA associated with economic activity in the Milford Haven Waterway, over 60% is estimated to be generated in the energy sector – roughly 12% of the Pembrokeshire economy (MHPA, 2012).
- 3.5.5 In 2019, total historic investment in the marine energy sector in Wales stood at £96.2 million (Marine Energy Wales (MEW)). The sector has directly supported 566 person years of employment in Wales, and the contribution increases when effects are included from elsewhere in the supply chain (MEW).

3.6 Income

- 3.6.1 The Annual Survey of Hours and Earnings reports that earnings in Pembrokeshire are much lower than in Wales as a whole. The median annual earnings of a Pembrokeshire resident in full-time employment is £24,824, compared to £27,039 for Wales. Workplace based measures show a similar picture with median earnings approximately 90% of the Wales average.
- 3.6.2 The ONS reports that, in 2015, GVA per job in Pembrokeshire was £36,370³ compared to an average of £41,917 in Wales and £51,619 in the UK⁴.

3.7 Commuting

- 3.7.1 Travel to work patterns indicate a functional economic area that is contained almost entirely within Pembrokeshire local authority. Census 2011 data on Origin Destination indicates that 91% of Pembrokeshire residents that are in employment work within the Pembrokeshire local authority, and 92% of workers who work in Pembrokeshire are residents of Pembrokeshire local authority.
- 3.7.2 Of the 54,697 Pembrokeshire residents in employment, 18% work mainly at or from home and 9% have no fixed place of work (Census 2011, ONS). In Pembrokeshire, 87% of jobs with a fixed workplace outside the home are filled by residents of Pembrokeshire, and 13% are taken by in-commuters (Census 2011, ONS).

3.8 Future Economic Baseline

- 3.8.1 Based on Statistics Wales' local authority population projections, Pembrokeshire's population is expected to decrease by around 1.6% between 2019 and 2039.
- 3.8.2 Employment in extraction and mining (capturing oil and gas activities) and utilities (capturing other energy activities) are estimated to remain at roughly the same level between 2017 and 2033. GVA in these sectors is also expected to remain largely static (Local Employment Trends Background Paper, PCC, 2018). The value of fuel refining is expected to fall over the same period, from £189.1 million in 2017 to £146.5 million in 2033.

³ Analysis of Regional Gross Value Added, Regional and by Local Authority and Jobs Density, ONS

⁴ Nominal (smoothed) GVA (B) per hour worked indices; NUTS 2 and NUTS 3 subregions, ONS

- 3.8.3 Despite an important economic contribution, non-renewable elements of the energy sector in Pembrokeshire are under an increasing regulatory burden, with concerns that firms are finding it more difficult to invest profitably (MHPA, 2012). There are opportunities for investment in renewable energy activities to diversify the energy sector in Pembrokeshire and create better conditions for growth in the future. The absence of the PDI project might slow down this diversification process.
- 3.8.4 Nearly half of Wales' electricity generation in 2016 could be decommissioned by 2030, mostly consisting of coal and gas power stations, which would have negative consequences for the significant non-renewable elements of Pembrokeshire's energy sector (Carbon Trust, 2018).
- 3.8.5 Given the energy sector in Pembrokeshire is heavily reliant on non-renewable energy sources, the future base case for energy-related activities in Pembrokeshire is unlikely to experience significant change. The absence of the PDI project could exacerbate this lack of growth, as it would inhibit the energy sector's capacity for exploiting one possible avenue of diversification.

3.9 Summary

- 3.9.1 This chapter has considered the existing economic conditions in Pembrokeshire local authority based on secondary data sources.
- 3.9.2 The Pembrokeshire economy contributed approximately £2.0 billion in GVA to the Welsh economy in 2015, which was around 3.5% of the economy as a whole that year (ONS). Of the 22 local authorities in Wales, Pembrokeshire ranked 14th in total GVA output.
- 3.9.3 Pembrokeshire saw an increase in micro and SME businesses between 2014–2018, although at a very slow rate compared to Wales and the rest of the UK. This reflects the decrease in the share of Pembrokeshire businesses that were newly formed, and an increase in the share of Pembrokeshire business that ceased operating.
- 3.9.4 Average earnings and GVA per job in Pembrokeshire are much lower than the equivalent figures for Wales as a whole, suggesting there is a need to improve the value of employment opportunities within the local authority.
- 3.9.5 The Energy sector has a strong concentration of business representation in Pembrokeshire, and is a major economic factor, contributing around £92 million in wages. However, the sector in Pembrokeshire is heavily biased towards oil and natural gas. Non-renewable elements of the energy sector in Pembrokeshire are under an increasing regulatory burden, with increasing concerns around profitability. Nearly half of Wales' electricity generation in 2016 could be decommissioned by 2030 which would have negative consequences for the substantial non-renewable elements of Pembrokeshire's energy sector.

4 Alternatives

4.0.1 This chapter considers whether there are alternative locations that the investment associated with the proposed development could be directed towards, should the application for the redevelopment of Gate 4 be rejected.

4.0.2 One of the central objectives of the planning system is to steer development to appropriate locations (PPW, 2018). When a planning application is rejected, it is hoped the associated investment will be directed to another site (TAN 23, 2014).

4.1 Locational considerations.

4.1.1 The PDI project will largely involve the redevelopment of the Gate 4 site at Pembroke Port, creating large open plan fabrication and laydown areas and land-to-sea transition space suited to the needs of the marine energy sector (with a primary focus on offshore wind and wave energy technologies). The project will create an operational base in excess of 5.5 ha, equating to 46,529 sq m of work area.

4.1.2 Given the context of the Swansea Bay City Region and the long-established use of the Port, the Site is considered appropriate for the proposed development for several reasons:

- The Site is brownfield land in an established industrial area in proximity to relatively deep water in the Milford Haven.
- The Site is considered suitable for marine-based activities.
- The Site is close to existing marine renewable device developers, supply chain and the consented META Phase 1 sites surrounding Pembroke Port.
- Pembroke Port also benefits from very good transport links in the form of the A477, which connects to the A48 and M4 to the west, and Pembroke Dock rail station, which is located approximately 1.2 km to the east of the site.

4.1.3 All of the above effectively combine to provide a unique opportunity, especially in West Wales. Therefore it has been decided to concentrate on Pembroke Port as a location for the PDI project.

4.2 Possible alternative locations

4.2.1 As discussed in Chapter 2, the policy environment in the UK and in Wales is facilitating a shift in energy production towards a more low-carbon mix, phasing out non-renewable sources such as coal and gas, and increasing the contribution of renewable sources such as wind, solar, and marine.

4.2.2 In order to meet the target of 70% of Wales' electricity consumption coming from renewable energy sources by 2030, there is a need to explore the technologies that can deliver the necessary gains in renewable energy production, and the locations where the impact of these deployments can be maximised.

- 4.2.3 Two key WG-backed studies⁵ have assessed the suitability of a number of locations across Wales for offshore renewable energy deployment. The Carbon Trust⁶ has recently published a study on behalf of WG which considers an initial evaluation of the case for offshore wind in Wales, including the potential for increased offshore wind deployment and the associated economic benefits. RPS has conducted a study on behalf of WG investigating the potential case for marine energy in Wales, and considers potential scenarios for its sustainable development.
- 4.2.4 The framework for assessing suitability can be largely categorised into three key considerations:
- Environmental conditions: Wind speed, water depth, seabed conditions, wave activity, and ocean currents
 - Consenting barriers: Existing lease agreements and military zones, environmental impacts, conflict with other sea users, and visual impact
 - Infrastructure: Grid transmission capacity, port infrastructure, and supply chain and workforce capabilities
- 4.2.5 These two key studies identify Pembrokeshire as the primary deployment location in Wales for two kinds of renewable energy sources: floating offshore wind and wave energy technologies.
- 4.2.6 It is clear from the first of these considerations that only coastal locations are suitable for investment in offshore wind technologies. The third of these considerations necessitates investment in locations that have the infrastructure and supply chain capacities to support growth in energy related activities. A port location is essential to facilitate device deployment and any on-site elements of the manufacturing process. More specifically, key site requirements are a large area of relatively flat land located close to relatively deep water.

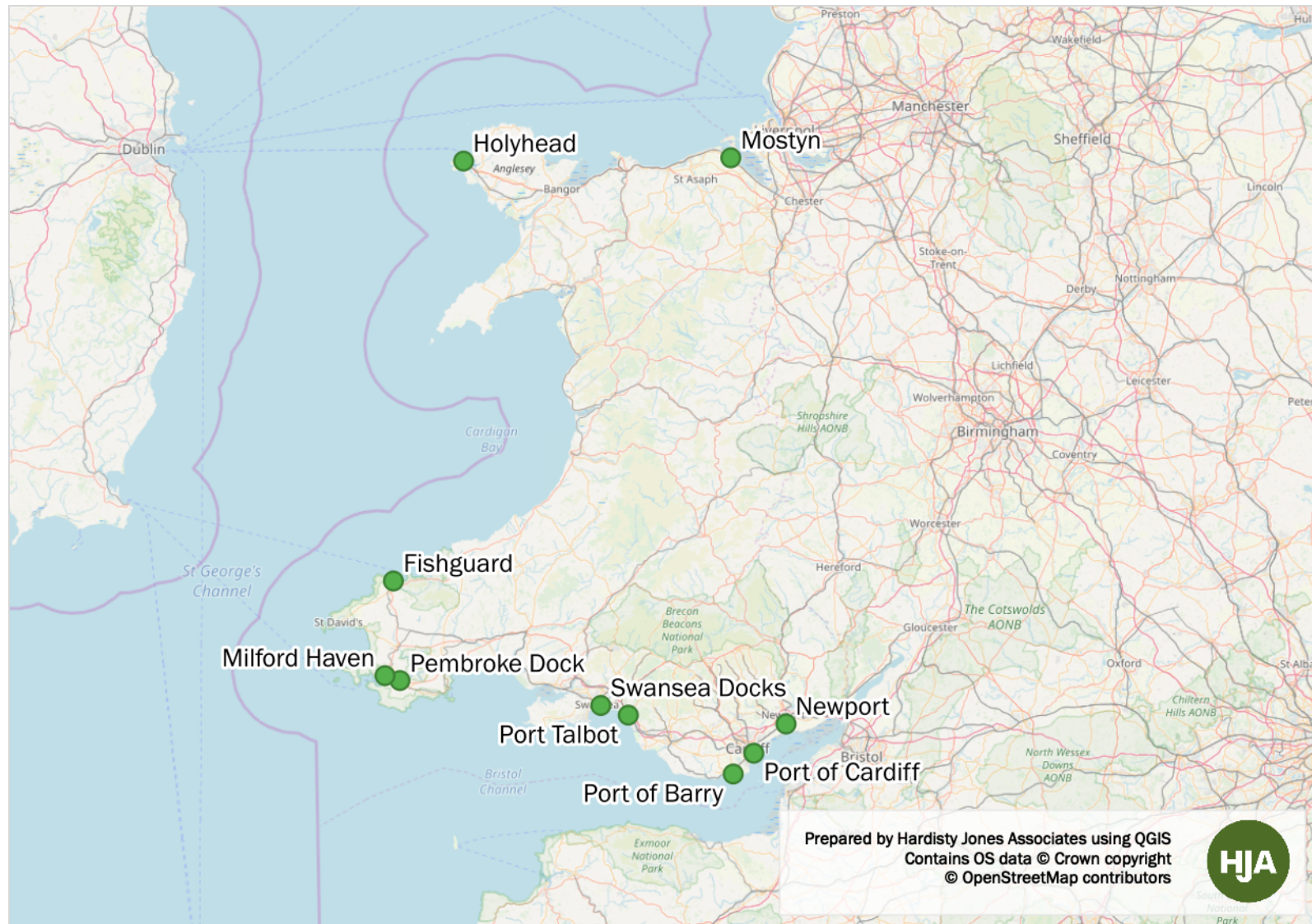
Wales-wide alternatives

- 4.2.7 Figure 4.1 shows the locations in Wales that have major ports traditionally used for commercial shipping, cargo handling, passenger ferries, commercial fishing, and oil and gas terminals. Mostyn is also shown in the map as, despite not being considered a 'major' port, it has a significant presence of offshore wind activities.
- 4.2.8 The possible alternative locations in Pembrokeshire and Wales that might be suitable for investment in offshore wind and wave energy technologies are considered in the remainder of this chapter.

⁵ Marine Renewable Energy Strategic Framework: Approach to Sustainable Development (2011), RPS; Future Potential for Offshore Wind in Wales (2018), Carbon Trust; The Economic Impact of the Development of Marine Energy in Wales (2013), Regeneris and Cardiff Business School;

⁶ Future Potential for Offshore Wind in Wales (2018)

Figure 4.1 – Location of major ports in Wales



Source: RPS Ltd, 2011

Wave energy

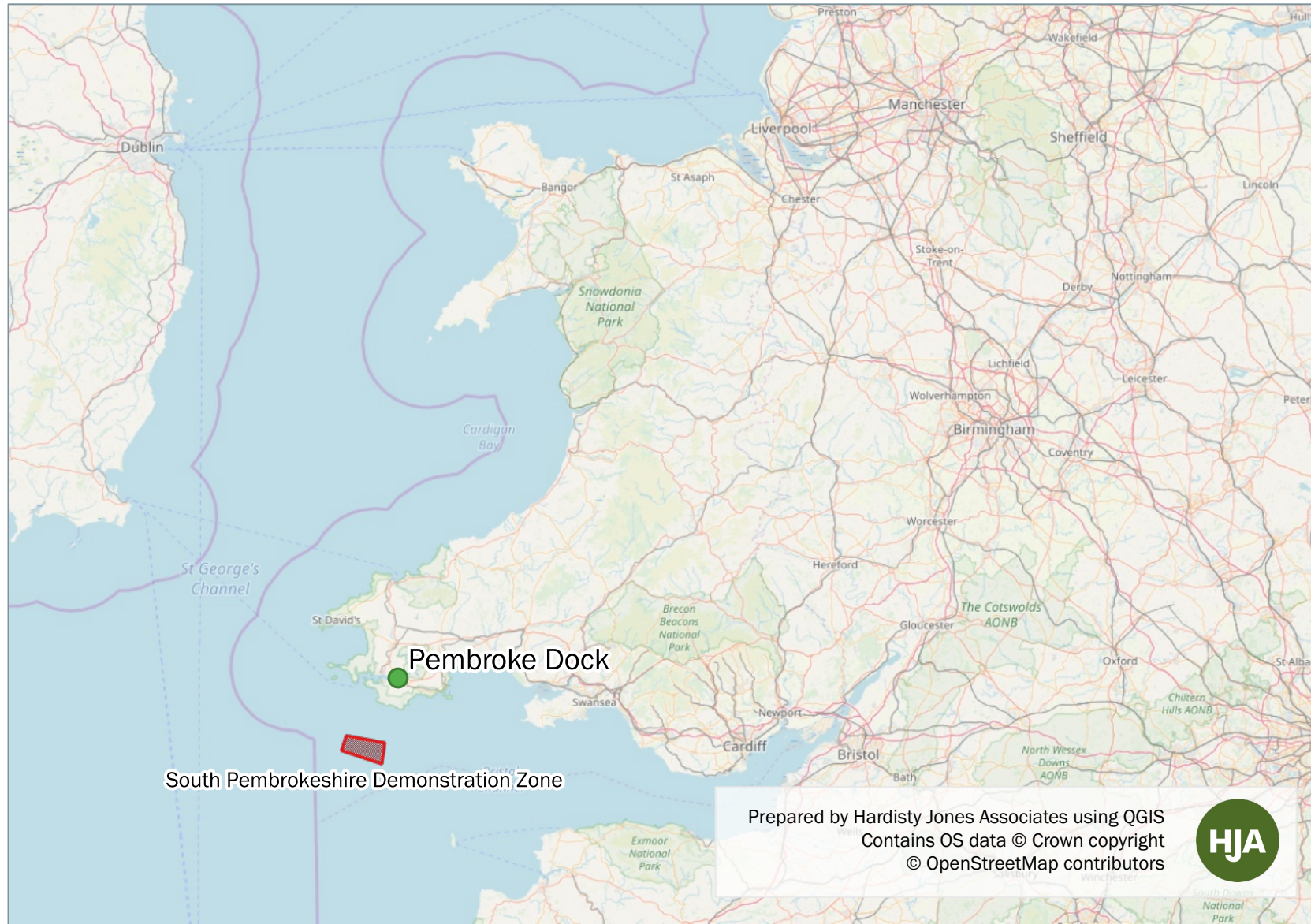
Existing deployment sites

- 4.2.9 There is currently one site in Wales where wave energy device deployment is possible – the South Pembrokeshire Demonstration Zone. The location of the site is shown in Figure 4.2. A suite of further testing sites in Pembrokeshire are in the early stages of development – these sites fall within the Marine Energy Test Area project (one element of the PDM project), and are focused around the Milford Haven Waterway.

Future deployment sites

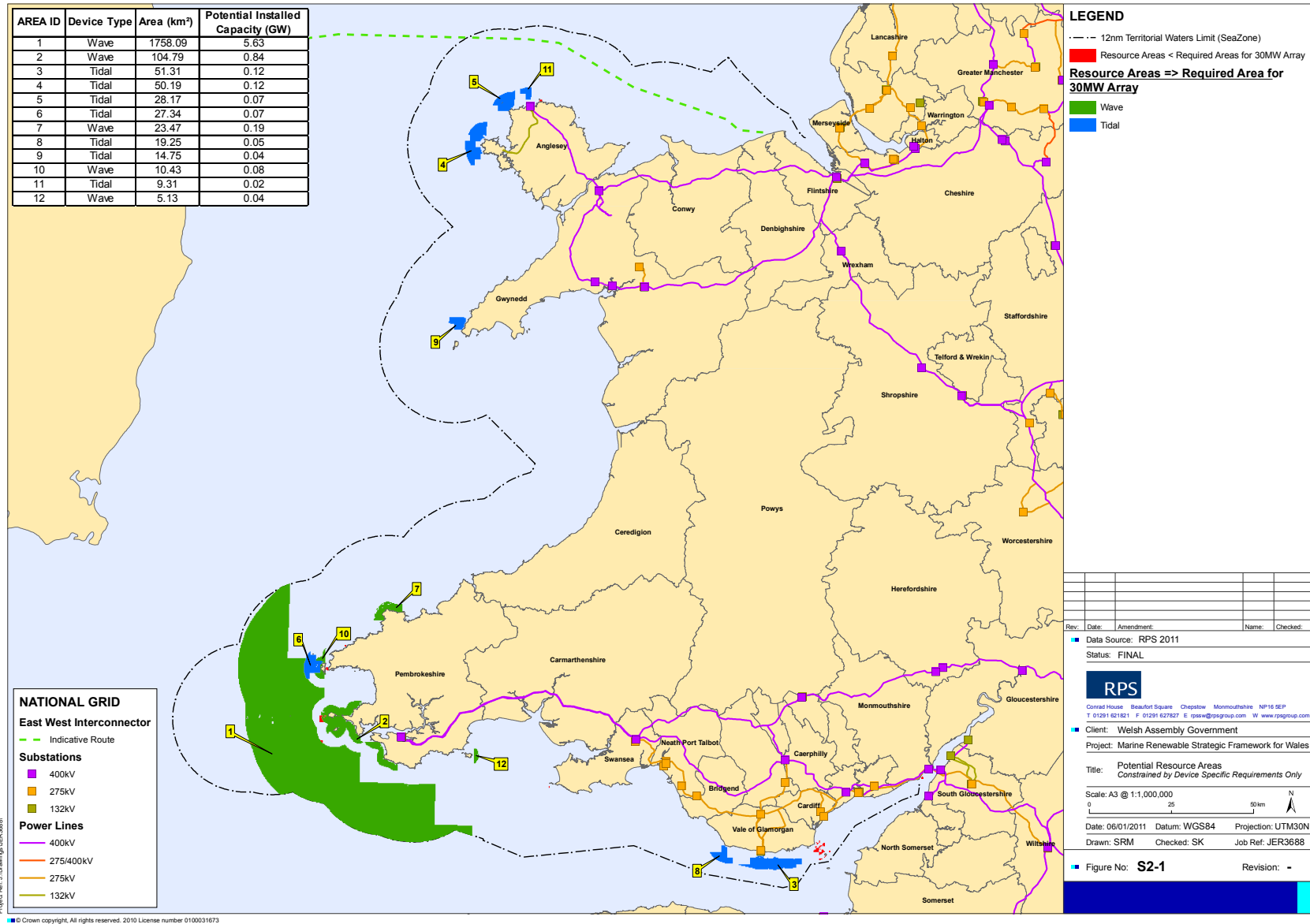
- 4.2.10 Figure 4.3 shows the resource areas for wave and tidal energy in Wales as defined as part of the Marine Renewable Energy Strategic Framework for Wales, 2011.
- 4.2.11 It is evident that Pembrokeshire is the most cost effective location in Wales with the potential for delivering any wave energy deployments. As such, the PDI project could act as a pathfinder for future investment in the wave energy sector elsewhere in Wales.

Figure 4.2 – Location of wave energy consented sites in Wales



Source: Hardisty Jones Associates

Figure 4.3 – Potential wave and tidal resource areas in Wales



Source: RPS Ltd, 2011

Offshore wind energy

Existing deployment sites

4.2.12 Wales' territorial waters extend over four primary coastal regions:

- Irish Sea (North Wales)
- Cardigan Bay (West Wales)
- Atlantic (Pembrokeshire)
- Bristol Channel (South Wales)

4.2.13 Offshore wind deployment in Wales is currently concentrated in the Irish Sea off the coast of North Wales. These wind projects are North Hoyle (60 MW), Rhyl Flats (90 MW), and Gwynt-y-Môr (576 MW). The Crown Estate are currently considering an application to double the capacity at the Gwynt-y-Môr deployment (making it a 1.1 GW deployment). There are currently no other consents or applications for offshore wind deployments in Wales.

Future deployment sites

4.2.14 Offshore wind energy technologies fall into two categories – fixed and floating. The conditions at each potential site will determine which foundation type is best suited to the project. In places where the seabed conditions mean water depths are relatively shallow, the use of conventional fixed-bottom techniques to install offshore wind farms are commonplace. Currently, where this approach is viable, it is the preferred approach due to the relative maturity of the technology. The technology for floating offshore wind structures is much less developed, therefore will only be chosen in locations where water depths make fixed-bottom structures unviable. Here, floating structures are tethered to the seabed in order to give stability, and there are far fewer restrictions on how deep the water can be.

4.2.15 Analysis carried out by The Carbon Trust on behalf of WG indicates there is a concentrated but extensive area of seabed off the coast of Pembrokeshire in the Atlantic that is suitable for floating offshore wind deployments (Carbon Trust, 2018). The proximity of this area to the shoreline would have the advantage of reducing offshore transmission costs. The existing presence of port facilities at Pembroke Dock and Milford Haven would also provide benefits in terms of logistics and supply chain activities.

4.2.16 The other possible offshore wind deployment sites in the Carbon Trust's analysis would present opportunities for fixed-bottom deployments. These sites are concentrated in the part of the Irish Sea that falls within Wales' western territorial waters, as well as additional deployments in the Irish Sea off the coast of North Wales (Carbon Trust, 2018). These areas should not be considered as direct alternatives to the Pembrokeshire coast as the water depths demand an alternative technology solution.

Pembrokeshire alternatives

4.2.17 The proposed development, being relatively flat and located close to deep water, will facilitate the efficient transfer of marine renewable devices and vessels between land and sea and simultaneously, via the formation of large open areas and within new buildings, allow work to be undertaken on vessels and devices without unduly occupying slipways.

- 4.2.18 In terms of other sites nearby, the Milford Haven Waterway (with the exception of Pembroke Port), is a designated Special Area of Conservation (SAC). Therefore an alternative site within the Milford Haven Waterway would pose significantly more environmental constraints than the application site.
- 4.2.19 Hobbs Point, to the east of Pembroke Port, is located close to relatively deep water. However, the area available for development is not of the necessary scale. To create an area of sufficient scale at Hobbs Point would require extensive and complex land assembly and acquisition. Any associated reclamation would be take place within or very close to the SAC.
- 4.2.20 A largely new build port facility, either at Hobbs Point or elsewhere in the Port of Milford Haven, would likely be prohibitively expensive when compared to the proposed development.
- 4.2.21 Overall, there are no other suitable or viable sites within the Port of Milford Haven and surrounding area other than the application site due to a combination of geological, ecological and viability reasons.

4.3 Summary

- 4.3.1 This chapter has considered the possible alternative locations where the investment associated with the proposed development could be directed should the application for the redevelopment of Gate 4 be rejected.
- 4.3.2 There are a handful of other major ports in Wales that would have the infrastructure to accommodate the level of economic activity associated with the proposed development. However, the most cost effective location in Wales with the environmental conditions to support the development and deployment of wave and floating offshore wind energy technologies is Pembrokeshire.
- 4.3.3 The PDI project offers a singular opportunity to support the marine energy sector in Wales. Pembrokeshire has a combination of environmental conditions (offshore wind and wave energy potential) and existing energy sector activity (including test sites), as well as infrastructure and associated supply chain activity, that is unique within Wales. It is anticipated these conditions would lead to agglomeration benefits as the PDI project becomes operational.
- 4.3.4 Due to the SAC status of the majority of the Milford Haven Waterway, and any alternatives requiring the new development of supporting port infrastructure with the associated prohibitively expensive costs, there are no other suitable or viable sites within the Port of Milford Haven and surrounding area.
- 4.3.5 A significant level of investment in wave and floating offshore wind energy technologies is unlikely to occur in Pembrokeshire, or Wales, should the application for the proposed development be rejected. Given the current under-utilisation of the site, it should be seen as a highly suitable location for receipt of the investment to deliver the proposed development.
- 4.3.6 The site should be developed with the intention of meeting future demand in the sector. If the proposed development is not forthcoming in the near future, it is likely that Pembrokeshire and Wales will miss out on the expected investment in wave and floating offshore wind energy technologies – alternative locations outside of Wales that have taken steps to deliver appropriate infrastructure and premises will be preferred.

5 Construction Impacts

- 5.0.1 This chapter considers the economic impacts arising from the construction of the proposed development. Construction impacts are considered separately to the operational phase impacts given the time-limited nature of the construction and engineering works.
- 5.0.2 Economic impacts will be felt through the employment of labour, purchase of materials, and the expenditure of workers and businesses in the local area.
- 5.0.3 All impacts are based on currently available information with any assumptions stated and sourced. The assessment of economic impact can be refined as detailed design work is undertaken. The figures quoted are therefore set out as indicative.
- 5.0.4 Impacts are considered at site level and Pembrokeshire local authority level.
- 5.0.5 The construction phase has the potential to deliver substantial economic impact given the scale and complexity of the proposed development, requiring not only ground works and building construction, but also installation of substantial and technologically complex structures.

Costs and investment

- 5.0.6 Paragraph 1.1.3 summarises the deliverables that will form part of the physical reshaping of Gate 4.
- 5.0.7 The total cost of these deliverables is estimated as £36.2 million (FBC). This will create the opportunity for local sub-contracting and labour supply as well as materials and plant supply-chain linkages. The total construction and installation period is estimated at 2–3 years.

Gross direct economic impacts

Construction and installation

- 5.0.8 Total construction phase capital expenditure is estimated at £36.2 million.
- 5.0.9 Employment impacts are expressed as ‘person years’ of employment. This measure is used to represent one full time equivalent post for a single year. This approach captures the contract nature of much construction work, encompassing a range of trades on varying contract lengths. An estimate of person years is generated on the basis of average turnover per worker in the construction sector taken from the ONS Annual Business Survey. Based on estimated turnover per worker for the UK construction sector the anticipated level of capital expenditure will support 203 person years of construction sector employment in the UK. This gross direct impact will be spread across the anticipated 2–3 year construction phase. This equates to an average annual requirement for 68–101 person years of employment.

Gross direct wages

- 5.0.10 Data from the Annual Survey of Hours and Earnings (ONS, 2015) has been used to determine the earnings impacts associated with this employment. Data has been used for the most appropriate industrial sector. Gross direct wages are estimated at £6.3 million over the entire construction phase.

Gross direct GVA

- 5.0.11 Gross Value Added is a measure of local economic output. Data from the Annual Business Survey (ONS, 2015) has been used to determine the GVA impacts associated with this employment. Data has been used for the most appropriate industrial sector.
- 5.0.12 Gross direct GVA is estimated at £16.1 million over the entire construction phase.

Summary of gross direct construction phase economic impacts

- 5.0.13 It is estimated the development will generate 68–101 person years of employment for Pembrokeshire, supporting £2.1 million–£3.1 million in wages and £5.4 million–£8.1 million in GVA annually for the estimated 2–3 year construction phase.

Figure 5.1 – Summary of gross direct construction phase economic impacts (Pembrokeshire)

	Annual	Total
Jobs (person years)	68 – 101	203
Wages	£2.1–£3.1 million	£6.3 million
GVA	£5.4–£8.1 million	£16.1 million

Source: HJA analysis

Net additional economic impacts

- 5.0.14 The impacts outlined above are gross direct impacts. It is best practice to allow for 'additionality' factors in order to arrive at a net additional local impact. This allows an assessment of the net effects at site level and Pembrokeshire local authority level. This assessment allows for leakage, deadweight, displacement and substitution, and multiplier effects. These are explained in more detail below. Unless otherwise stated assumptions are informed by HCA (2014) Additionality Guide: Fourth Edition. These only apply to jobs and wages.

Leakage

- 5.0.15 Leakage is a measure of the impacts which 'leak' outside the impact area being considered. For example, jobs which are taken by those living outside Pembrokeshire.
- 5.0.16 A 10% reduction to gross direct employment has been made to allow for HQ and project management functions, assuming a lead contractor with a HQ outside Pembrokeshire. The remainder are assumed to be site based.
- 5.0.17 For the remainder, the 2001 Census of Population provides detailed assessment of the origin and destination of workers by sector. Whilst this dataset is now somewhat out of date, it provides some insight into the workings of the economy. At 2001 some 92% of construction workers employed in Pembrokeshire lived within this area. The 2011 Census of Population data does not provide the sectoral data but does suggest overall levels of commuting are broadly similar to those in 2001. We have therefore adopted the 2001 Census sectoral data to assess leakage of construction employment. On this basis, leakage is assessed as 8%.

Deadweight

- 5.0.18 Deadweight is a measure of what impacts would have occurred without the proposed development. The base case during the operational phase is discussed in more detail in section 6.1. There is no major construction investment planned at the site in the absence of the proposed development. No

investment in the construction of a similar scheme is anticipated to take place elsewhere in the impact area i.e. Pembrokeshire, given the lack of suitable alternative locations. Therefore, for the construction phase there is no deadweight to be accounted for.

Displacement and substitution effects

- 5.0.19 Displacement and substitution effects are used to discount the proportion of gross impacts which offset other impacts which would otherwise have occurred. For example, a construction firm securing a contract to work on the proposed development therefore turns down another contract that would otherwise have kept the team gainfully employed. Or a new firm establishes a construction operation to secure a contract and secures an opportunity that would otherwise have gone to another local construction firm.
- 5.0.20 The primary concern in this analysis is with substitution effects upon local construction firms - this is assumed as very low.
- 5.0.21 The construction sector in Pembroke Dock and Pembroke currently provides 350 jobs, with 2,500 jobs provided across Pembrokeshire local authority. The average annual requirement for construction labour is therefore equivalent to up to 33% of the local construction workforce and up to 0.9% of the Pembrokeshire construction labour force. In addition, across the Swansea Bay City Region there are currently (November 2018) 175 jobseekers seeking construction-related employment within process, plant and machine operative, or elementary occupations. The proposed development will therefore provide opportunities for contracts into the local construction sector without putting a strain on the local sector that will create distortions.
- 5.0.22 A 'very low' displacement deduction⁷ of 10% has been applied at the Pembrokeshire level.

Multipliers

- 5.0.23 Multipliers are a tool used to assess the ongoing and repeated effects of expenditure in the economy through supply chains and by workers. In this analysis we are using Type II multipliers which incorporate both the supply chain (indirect) effects of investment and the induced effects as incomes earned by workers are spent in the local economy.
- 5.0.24 The construction sector has particularly high multipliers, with high levels of locally retained expenditure. This reflects the local sourcing of labour and the expenditure of earned incomes in the local area, as well as the often localised purchase of building materials, particularly non specialised materials.
- 5.0.25 A multiplier of 1.5 is therefore applied at the Pembrokeshire level.

Summary of net additional economic impacts

- 5.0.26 The assumptions outlined above are applied to the gross direct effects previously set out. It is estimated the development will generate 75-113 person years of employment for Pembrokeshire, supporting £2.3 million-£3.5 million in wages and £6.0 million-£9.0 million in GVA annually for the estimated 2-3 year construction phase.

⁷ Based on Table 4.8, HCA (2014) Additionality Guide, Fourth Edition

Figure 5.2 – Net additional economic impacts (Pembrokeshire)

	Annual	Total
Jobs (person years)	75–113	225
Wages	£2.3–£3.5 million	£7.0 million
GVA	£6.0–£9.0 million	£17.9 million

Source: HJA analysis

5.1 Summary

- 5.1.1 In gross direct terms, it is estimated that a total construction investment of £36.2 million will generate 68–101 person years of employment for Pembrokeshire, supporting £2.1 million–£3.1 million in wages and £5.4 million–£8.1 million in GVA annually for the estimated 2–3 year construction phase.
- 5.1.2 In net additional terms, is estimated the construction phase of the development will generate 75–113 person years of employment for Pembrokeshire, supporting £2.3 million–£3.5 million in wages and £6.0 million–£9.0 million in GVA annually for the estimated 2–3 year construction phase.

Figure 5.3 – Summary of gross direct and net additional economic impacts (Pembrokeshire)

	Annual	Total
Gross Direct Economic Impacts		
Jobs (person years)	68 – 101	203
Wages	£2.1–£3.1 million	£6.3 million
GVA	£5.4–£8.1 million	£16.1 million
Net Additional Economic Impacts		
Jobs (person years)	75–113	225
Wages	£2.3–£3.5 million	£7.0 million
GVA	£6.0–£9.0 million	£17.9 million

Source: HJA analysis

6 Operational phase

6.0.1 This section considers the economic impacts arising from the on-going operation of the proposed development. There will be a range of direct on-site impacts including jobs, wages, and GVA arising from activities taking place within the employment premises delivered as part of the proposed development.

6.1 Base case

6.1.1 To gauge the benefit of any proposed development, it is necessary to establish the ‘base case’ scenario in which the proposed development does not go ahead (TAN 23, 2014). In the event that the PDI project does not come forward, an assessment of the future base case has been carried out and is described within this section.

On-site

6.1.2 The data on current on-site⁸ activity has been provided by MHPA. There is currently 11,230 sq m of occupiable floorspace, made up of approximately 39 units. Of the existing floorspace, 5,500 sq m is scheduled for demolition as part of the proposed development, with 5,730 sq m set to remain. Occupancy rates are very good across the site (floorspace 93%, units 90%), with around 20 businesses, individuals, and public sector organisations occupying units at the site.

Figure 6.1 – Lease status of on-site units (as of March 2019)

Status	Occupiable floorspace (sq m)	Occupied floorspace (sq m)	Occupiable units	Occupied units
Scheduled for redevelopment	5,501	5,485	22	21
Not scheduled for redevelopment	5,729	4,929	17	14
Total	11,230	10,414	39	35

Source: HJA analysis based on tenancy data provided by RPS

6.1.3 It is unclear precisely how much economic activity is supported by the existing units. MHPA has provided estimates of employment levels supported by current tenants. HJA have also conducted an assessment of employment levels based on standard employment densities as per the Employment Density Guide 3rd Edition⁹ (HCA, 2015).

6.1.4 Based on MHPA estimates, the site currently supports 119 FTE jobs. This level of employment is estimated to support around £3.2 million in wages, and £8.0 million in GVA on an annual basis. Based on indicative employment densities, the site currently has the potential to support 236 FTE jobs. This level of employment supports around £6.3 million in wages, and £15.9 million in GVA on an annual basis.

⁸ On-site activity in this assessment does not consider any activity taking place outside the ‘red line’

⁹ In the absence of definitive use class information, a 50:50 split between B2 and B8 uses has been assumed across the site

Figure 6.2 – Estimated existing employment levels on site

Status	MHPA-based estimate	HJA density-based estimate
FTE Jobs	119	236
Wages	£3,196,000	£6,343,500
GVA	£8,010,100	£15,898,800

Source(s): MHPA and HJA

6.1.5 The disparity between the ‘on-the-ground’ MHPA estimates and the ‘potential’, density-based HJA estimates points towards potential under-utilisation of premises under current occupancy conditions.

6.1.6 Based on the Pembroke Dock Marine Full Business Case (Working Draft Report)¹⁰, in the absence of the proposed development it is expected the premises will continue to be used by current tenants, although a lack of private investment will lead to deterioration of the units and eventually lead to the site becoming redundant. However, this assessment adopts current conditions as the base case, as there is a degree of uncertainty as to how market failures will impact the site, and over what timeframe the site will become redundant.

6.2 Proposed Development

6.2.1 The Pembroke Dock Marine project comprises four separate but interrelated elements that build on an existing energy cluster around the Milford Haven Waterway. Pembroke Dock Infrastructure is one of the four elements of the PDM project. It will involve the redevelopment of the Gate 4 site at Pembroke Port, creating large open plan fabrication and laydown areas and land-to-sea transition space suited to the needs of the marine energy sector (with a primary focus on offshore wind and wave energy technologies).

6.2.2 There will be a range of direct on-site employment opportunities. These include permanent, year-round positions and short-term contractor opportunities.

6.3 Gross direct impacts

Employment assumptions

6.3.1 The proposed development has a range of potential uses and users. As a result the scale of potential employment and economic impact is uncertain. This analysis seeks to identify a reasonable estimated range of the potential economic impact based on the available evidence, including guidance on standard workspace employment densities, and published material on potential operator activity levels.

6.3.2 Three estimates of potential on-site employment have been made. These can be summarised as follows:

¹⁰ Prepared on behalf of the Port of Milford Haven, the Pembroke Dock Marine Full Business Case (Working Draft Report, 2018) assesses whether the proposed investment in Pembroke Dock Marine (PDM) represents value for money and is deliverable. The FBC covers all four elements of the PDM project, not just the PDI project.

1. Applying standard employment densities to internal workspaces (Scenario 1);
2. Analysis based on McAlpine contractor estimates (Scenario 2); and
3. Analysis based on Farran contractor estimates (Scenario 3).

6.3.3 Each of these is described in more detail below. For all scenarios estimates take account of shift working and report employment impacts in terms of full time equivalents (FTEs).

Standard employment densities for internal work areas (Scenario 1)

6.3.4 This approach applies standard employment densities from *Employment Density Guide, 3rd edition*, HCA, (2015) to the internal work areas. This scenario excludes any external areas.

6.3.5 The employment activities that will be facilitated by each Unit in the Gate 4 redevelopment are described in the Masterplan (Revision M). RPS has provided additional information on the expected use class of each unit. This information is summarised in the table below.

Figure 6.3 – Scenario 1 unit floorspace, description, and use class

Unit	Area (sq m)	Description	Use Class
A	11,900	Manufacturing & Assembly	B2
B	4,900	Ship Repair and Fabrication	B2
C	2,500	Light Assembly and Maintenance	B1c
C1	5,000	Open/External Light Assembly	N/A
D	12,937	Open/External Batching Plant and Storage	N/A
E		Employee Car Park	
F1	8,058	Open/External Final Assembly	N/A
F2	4,836	Open/External Final Assembly	N/A
J	11,838	Slipway	N/A
Former Foreman's Office*	279	Additional area not in RevM plan	B1a

*An inclusion has been made to allow for the redevelopment of the Former Foreman's Office for B1a office use, which does not appear in Revision M of the Masterplan, but has since been included as part of the redevelopment of Gate 4

Source: Masterplan Revision M and RPS advice

6.3.6 Based on standard employment densities the internal work areas include capacity for 506 FTEs as summarised in Figure 6.4.

Figure 6.4 – Summary of Scenario 1 Site Employment Capacity (single shift)

Use class	Density assumption, per employee (HJA)	FTE employment
B1a	11 sq m	20
B1c	47 sq m	43
B2	36 sq m	443
Total		506

Source: HJA analysis

6.3.7 No allowance has been made for external working areas as no standard employment density assumptions are available. Scenarios 2 and 3, drawing on potential operator workforce estimates

have been used to illustrate how a single large site could be used, including both internal and external work areas. If internal areas were used at standard densities, and external areas also utilised, potentially at a lower density, then total employment capacity could be greater than stated.

- 6.3.8 Figure 6.5 estimates total on-site FTE jobs based on daytime and night time shift patterns. It is assumed operation will take place 7 days per week, with two shifts (day and night). The night shift is assumed to operate at 50% of the day shift workforce. It is assumed each employee will work an average of 4 shifts per working week. A 4 day on/4 day off shift pattern for both day and night shifts has been assumed, which provides shift patterns of 8-day blocks¹¹.
- 6.3.9 Building B and the former Foreman’s Office are excluded from shift working assumptions and are expected to operate on a single shift.
- 6.3.10 Under Scenario 1 conditions, the proposed development is estimated to deliver 1,219 FTE jobs. The assessment of Scenario 1 is summarised in Figure 6.5 below. Maximum on-site employment at any one time is estimated at 506 FTEs as per Figure 6.4.

Figure 6.5 – Summary of Scenario 1 Shift Working FTE Estimates

Employment element	FTE employment
Day shift (2 shifts of workers on rotation)	713
Night shift (2 shifts of workers on rotation)	357
Unit B (retained)	129
Former Foreman’s Office (retained)	20
Total	1,219

Source: HJA analysis

Contractor estimates

- 6.3.11 The UK Government Department for Energy and Climate Change commissioned research into the potential for the development of Articulated Wind Columns (AWCs)¹². This research included analysis from two potential manufacturing and assembly contractors (McAlpine and Farrans) of workforce and employment requirements associated with the fabrication of 50 AWCs per annum at a single site.
- 6.3.12 The Pembroke Dock Gate 4 site has been assessed as having capacity for the fabrication of 26 AWCs per annum. In addition, building B as identified within *Pembroke Dock Marine Revision M Masterplan*, RPS Group (2018) would be retained for other employment uses, as would the former Foreman’s Office. Employment estimates for building B and the former Foreman’s Office are based on standard densities. HJA has therefore estimated the potential employment impacts associated with the production of 26 AWCs per annum in line with the contractor estimates.
- 6.3.13 Figures are provided for on-site workers based on daytime and night time shift patterns. It is assumed operation will take place 7 days per week, with two 10–12 hour shifts. It is assumed each employee will work an average of 4 shifts per average working week, which equates to a 35–42 hour working week (average). A 4 day on/4 day off shift pattern for both day and night shifts has been assumed,

¹¹ This approach has been used to estimate an FTE at c42 hours per week. It is possible that there will be fewer actual workers operating much longer average working weeks.

¹² Articulated Wind Column (AWC) Summary Report, Department for Energy and Climate Change (2016)

which provides shift patterns of 8-day blocks. This means that each worker participates in 44 blocks per annum. This equates to between 1,760–2,112 hours per annum, which is safe to be taken as equivalent to 1 FTE¹³.

- 6.3.14 In addition to the contractor based employment estimates, both Scenario 2 and 3 assume the retention of Unit B and the Foreman’s Office, therefore density-based employment estimates for these two premises are included in the assessment of both scenarios and assumed as operating on a single day shift.

McAlpine employment estimates (Scenario 2)

- 6.3.15 Using McAlpine employment estimates¹⁴, and applying the assumptions detailed above, the proposed development is estimated to deliver 1,172 FTE jobs. The assessment of Scenario 3 is summarised in Figure 6.6 below. Peak on-site workforce at any point in time (day shift) is estimated at 483 FTEs.

Figure 6.6 – Summary of Scenario 2 Shift Working FTE Estimates

Employment element	FTE employment
Day shift (2 shifts of workers on rotation)	667
Night shift (2 shifts of workers on rotation)	356
Unit B (retained)	129
Former Foreman’s Office (retained)	20
Total	1,172

Source: HJA analysis based on McAlpine employment estimates

Farrans employment estimates (Scenario 3)

- 6.3.16 Using Farrans employment estimates¹⁵, and applying the assumptions detailed above, the proposed development is estimated to deliver 453 FTE jobs. The assessment of Scenario 3 is summarised in Figure 6.7 below. Peak on-site workforce at any point in time (day shift) is estimated at 228 FTEs.

Figure 6.7 – Summary of Scenario 3 Shift Working FTE Estimates

Employment element	FTE employment
Day shift (2 shifts of workers on rotation)	157
Night shift (2 shifts of workers on rotation)	147
Unit B (retained)	129
Former Foreman’s Office (retained)	20
Total	453

Source: HJA analysis based on Farrans employment estimates

Summary

- 6.3.17 It is estimated the development will generate 453–1,219 FTE jobs direct on-site jobs. Figure 6.8 summarises the results of all three scenario approaches. Total FTEs are based on shift working patterns. The peak on-site workforce is estimated at 228 – 506 FTEs.

¹³ The AWC report sets out a range of potential shift working patterns which may include longer working weeks per worker. The total number of employees may therefore be lower than as stated in this analysis. However, to allow consistent comparison between options the analysis has sought to use a broadly consistent measure for one full time equivalent role.

¹⁴ 641 day shift workers and 342 night shift workers for the fabrication of 50 AWCs.

¹⁵ 151 day shift workers and 141 night shift workers for the fabrication of 50 AWCs.

Figure 6.8– Summary of scenario-based FTE employment assessment

Employment element	Peak On-Site Workforce	FTE employment
Scenario 1	506	1,219
Scenario 2	483	1,172
Scenario 3	228	453

Source: HJA analysis

Outputs

Gross direct jobs

- 6.3.18 Applying the above assumptions in line with the AWC Summary Report operational requirements, the operational employment level is estimated to be 453–1,219 FTE.

Gross direct wage impacts

- 6.3.19 Data from the Annual Survey of Hours and Earnings (ONS, 2017) has been used to determine the earnings impacts associated with this employment. Median gross annual full-time earnings figures have been used for the most appropriate industrial sector¹⁶. There is a premium for this kind of employment opportunity (median wage = £34,205) when compared to the average national wage for both Manufacturing (£30,025) and all sectors (£29,574). The FBC also identifies a wage premium for the anticipated employment activity. This indicates the proposed development will deliver an increase in high value employment in Pembrokeshire.

- 6.3.20 The redevelopment of Gate 4 is estimated to generate annual wages of almost £14.4 million –£40.6 million.

Gross direct GVA impacts

- 6.3.21 Unless otherwise stated, data from the Annual Business Survey (ONS, 2018) has been used to determine the GVA impacts associated with this employment. GVA per FTE data has been used for the most appropriate industrial sector¹⁷.

- 6.3.22 The redevelopment of Gate 4 is estimated to generate annual GVA in excess of £26.6 million –£67.7 million.

Summary of gross direct economic impacts

- 6.3.23 It is estimated the development will generate 453–1,219 FTE jobs for Pembrokeshire, supporting £14.4 million–£40.6 million in wages and £26.6 million–£67.7 million in GVA annually.

¹⁶ Turbine manufacture: SIC 2007 sector 2811 Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
Unit B: SIC 2007 sector C Manufacturing

Former Foreman's Office: SIC 2007 sector 82 Office administrative, office support and other business support activities

¹⁷ Turbine manufacture: SIC 2007 sector 2811 Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
Unit B: SIC 2007 sector C Manufacturing

Former Foreman's Office: SIC 2007 sector 82 Office administrative, office support and other business support activities

Figure 6.5 – Summary of gross direct economic impacts (Pembrokeshire)

	Annual
FTE jobs	453–1,219
Wages	£14.4–£40.6 million
GVA	£26.6–£67.7 million

Source: HJA analysis

Net additional impacts

Leakage

- 6.3.24 The 2011 Census of Population indicated that 91% of all jobs with a fixed workplace in Pembrokeshire are filled by residents of the region. Therefore, a leakage value of 9% has been adopted.

Displacement and substitution effects

- 6.3.25 Displacement and substitution effects are used to discount the proportion of gross impacts which offset other impacts which would otherwise have occurred. Low displacement and substitution effects are anticipated given the absence of similar activities within the impact areas, therefore a Displacement and Substitution value of 25% has been adopted.

Multipliers

- 6.3.26 Multipliers are a tool used to assess the ongoing and repeated effects of expenditure in the economy through supply chains and by workers. Type II multipliers are used in this analysis, which incorporate both the supply chain (indirect) effects of investment and the induced effects as incomes earned by workers are spent in the local economy. A medium multiplier factor is assumed, which is 1.3 at the Pembrokeshire level.

Deadweight

- 6.3.27 Deadweight is a measure of what impacts would have occurred without the proposed development. Following the application of all other additionality factors the assessed impacts of the base case are deducted to arrive at a net additional figure. The base case is described in more detail in section 6.1.

Summary of net additional impacts

- 6.3.28 The assumptions outlined above are applied to the gross direct impacts to derive net additional impacts at the Pembrokeshire level.
- 6.3.29 It is estimated the development will generate 288–975 FTE jobs for Pembrokeshire, supporting £10.1 million–£33.6 million in wages and £16.7 million–£53.6 million in GVA annually.

Figure 6.6 – Summary of net additional economic impacts (Pembrokeshire)

	Annual
FTE jobs	288–975
Wages	£10.1–£33.6 million
GVA	£16.7–£53.6 million

Source: HJA analysis

6.4 Summary

- 6.4.1 Based on MHPA estimates, the site currently supports 119 FTE jobs. This level of employment supports around £3.2 million in wages, and £8.0 million in GVA on an annual basis. Based on indicative employment densities, the site currently has the potential to support 236 FTE jobs. This level of employment supports around £6.3 million in wages, and £15.9 million in GVA on an annual basis. The disparity between the 'on-the-ground' MHPA estimates and the 'potential', density-based HJA estimates points towards an under-utilisation of premises under current occupancy conditions.
- 6.4.2 In gross direct terms, it is estimated the operational phase of the development will generate 453–1,219 FTE long term jobs for Pembrokeshire, supporting £14.4 million–£40.6 million in wages and £26.6 million–£67.7 million in GVA annually.
- 6.4.3 In net additional terms, is estimated the operational phase of the development will generate 288–932 FTE jobs for Pembrokeshire, supporting £10.1 million–£33.6 million in wages and £16.7 million–£53.6 million in GVA annually.

Figure 6.7 – Summary of gross direct and net additional economic impacts (Pembrokeshire)

	Annual
Gross Direct Economic Impacts	
FTE jobs	453–1,219
Wages	£14.4–£40.6 million
GVA	£26.6–£67.7 million
Net Additional Economic Impacts	
FTE jobs	288–975
Wages	£10.1–£33.6 million
GVA	£16.7–£53.6 million

Source: HJA analysis

7 Special Merit

7.0.1 This chapter considers whether the proposed development will make a special contribution to policy objectives.

7.0.2 Following TAN 23 guidance, it is necessary to consider the question of whether the development will make any special contribution to policy objectives. This makes it necessary to consider the policy objectives discussed in section 2 and summarised in Figure 2.1 as:

- Tackling climate change by reducing greenhouse gas emissions that cause climate change, and supporting the transition towards low carbon energy generation
- Capitalising on the economic opportunities for Wales and Pembrokeshire arising from renewable energy, and supporting the development of innovative business and technology clusters of low carbon activities
- Ensure the planning process acts as an enabler for physical development that supports the low carbon energy sector
- Delivering physical regeneration and employment opportunities to disadvantaged communities

Tackling climate change by reducing greenhouse gas emissions that cause climate change

7.0.3 It is estimated that Wales could need approximately 1.6–1.8 GW of additional renewable energy generation to reach its 2030 goal of generating 70% of the nation's electricity consumption from renewable energy sources (Carbon Trust, 2018).

7.0.4 Typical investments across renewable energy project lifetimes (approximately ~£3–4 billion in the case of offshore wind projects) can bring about considerable economic benefits to local and regional businesses and communities (Carbon Trust, 2018). Renewable energy projects are capital intensive and therefore can attract significant investment in Wales' energy infrastructure and supporting supply chains. There is also evidence of renewable energy community funds providing millions of pounds for local community schemes.

7.0.5 Wales possesses 2,120 km of coastline and a marine area of ~32,000 km², meaning that marine energy technologies can play an important role in meeting Wales' energy generation and decarbonization targets.

7.0.6 The PDM project comprises four separate but interrelated elements that together will build on an existing energy cluster that has grown around the Pembroke Dock area, with the aim of developing a world class centre for marine energy. PDM will contribute towards Pembroke's offering of location, knowledge and expertise, and supply chain and connectivity benefits, and will help to nurture developing marine energy technologies. Therefore, it is clear the redevelopment of Pembroke Port Gate 4 will contribute to the policy objective of tackling climate change by reducing the greenhouse gas emissions that cause climate change.

Capitalising on the economic opportunities for Wales and Pembrokeshire arising from renewable energy, and supporting the development of innovative business and technology clusters of low carbon activities

- 7.0.7 The PDM project as a whole, and the pivotal role of the proposed development within the PDM project, creates an economic opportunity to attract new and existing developers to locate part or all their operations within Pembrokeshire and Wales, as well as supporting the growth of developers already located in the area. It will support the testing of renewable energy devices. It is likely that developers will locate jobs relating to device deployment activity in Pembrokeshire, whether office-based analysts or field engineers. Testing will also require the services of specialists in manufacturing, installation, maintenance, and decommissioning. Device deployment, maintenance, and retrieval will also place additional demands on the seaborne haulage sector.
- 7.0.8 All of this activity will lead to the creation of new employment opportunities and greater levels of GVA growth. These effects could be substantial in comparison to the current size of the marine energy sector in Pembrokeshire and Wales (encompassing offshore wind and wave energy).
- 7.0.9 The PDM project will establish Pembrokeshire as one of a limited number of locations in the UK with a combination of test sites, co-located workspace, and business support. The cumulative effect of co-locating these marine energy related projects in Pembrokeshire will be to encourage the agglomeration of the renewable energy sector, and the marine energy sector in particular, in Pembrokeshire. This will provide a complementary set of infrastructures and enabling support to create the conditions for the sector to grow. The PDM project therefore presents a clear opportunity for Pembrokeshire to be firmly established as one of the UK's primary locations for marine energy R&D and production as the sector grows.
- 7.0.10 The three existing offshore wind deployments off the coast of North Wales have demonstrated the potential for renewable energy projects to bring economic benefits to nearby locations. Given its close proximity to the three deployments, the Port of Mostyn has played a significant role in installation and operation and maintenance activities associated with the projects. This has supported local supply chain activities and established the areas as a hub for offshore wind activity (Carbon Trust (2018)).
- 7.0.11 The Carbon Trust has estimated the global market for marine energy could be worth £340 billion by 2050. The UK's share of this could be worth £76 billion, whilst there could be as many as 68,000 UK-based jobs in the marine energy sector by 2050 (Carbon Trust, 2011). The absence of the PDI project could limit the expansion of the sector in Wales.
- 7.0.12 Therefore, it is clear the redevelopment of Pembroke Port Gate 4 will contribute to the policy objective of supporting the development of innovative business and technology clusters of low carbon activities.

Ensure the planning process acts as an enabler for physical development that supports the low carbon energy sector

- 7.0.13 As per the impact assessment in Section 4.3, it is estimated the construction phase of the redevelopment of Pembroke Port Gate 4 will generate 70–105 person years of employment for Pembrokeshire, supporting £2.2 million–£3.3 million in wages and £5.6 million–£8.4 million in GVA annually for the estimated 2–3 year construction phase (net additional). The operational phase is

estimated to support 288–975 FTE jobs for Pembrokeshire, supporting £10.1 million–£33.6 million in wages and £16.7 million–£53.6 million in GVA annually (net additional).

- 7.0.14 The PDI project and redevelopment of Pembroke Port Gate 4 is a pivotal element of the PDM project as a whole. A sufficient supply of high quality accommodation will be essential to the success of the project, as physical employment floorspace will be needed to accommodate technology developers, manufacturers and associated supply chain activity. This will enable existing stakeholders to work to economies of scale not currently possible, and enable new capacity to be supported from prototype manufacture and early testing through to commercial-scale manufacture and deployment. It is reasonable to assume the PDM project will have an agglomerative effect on activity in the marine energy industry, given how specialised the sector is, and how limited testing sites are for the sector’s technology. This emphasises the need for sufficient employment floorspace to accommodate this activity, and the PDI project will deliver this floorspace through the redevelopment of Pembroke Port Gate 4.
- 7.0.15 Therefore, it is clear the redevelopment of Pembroke Port Gate 4 will contribute to the policy objective of providing sufficient land to deliver development that will support economic and employment growth in the low carbon energy sector.

Delivering physical regeneration and employment opportunities to disadvantaged communities

- 7.0.16 All six Pembroke Dock LSOAs are ranked in the upper 37% of most deprived areas in Wales according to the Welsh Index of Multiple Deprivation’s (WIMD) overall measure. On an LSOA basis, one third of Pembroke Dock is ranked in the upper 11% most deprived areas in Wales based on the overall measure.
- 7.0.17 In terms of income, the WIMD ranks every Pembroke Dock LSOA in the upper 44% of most deprived areas in Wales. On an LSOA basis, one third of Pembroke Dock is ranked in the upper 12% most deprived areas in Wales based on the income measure.
- 7.0.18 In terms of employment, the WIMD ranks every Pembroke Dock LSOA in the upper 47% of most deprived areas in Wales. On an LSOA basis, one third of Pembroke Dock is ranked in the upper 6% most deprived areas in Wales based on the employment measure.

Table 7.1 – Pembroke Dock WIMD ranking based on LSOA

LSOA	WIMD 2014		Income		Employment	
	rank	percentile	rank	percentile	rank	percentile
Pembroke Dock: Central	201	11%	225	12%	123	6%
Pembroke Dock: Llanion 1	67	4%	97	5%	116	6%
Pembroke Dock: Llanion 2	707	37%	646	34%	530	28%
Pembroke Dock: Market	703	37%	763	40%	522	27%
Pembroke Dock: Pennar 1	487	26%	445	23%	508	27%
Pembroke Dock: Pennar 2	714	37%	832	44%	900	47%

Source: Masterplan

- 7.0.19 The current reliance of Pembrokeshire’s energy sector on non-renewable sources also presents the likelihood of future job losses as these energy sources come under an increased regulatory burden.

The decommissioning of the Murco oil refinery in Milford Haven is evidence of the significant job losses that can befall local communities as the UK's energy mix transitions towards renewable energy sources. The opportunity for sector diversification delivered by the PDI project would ensure that local labour markets are buffered from future job losses in non-renewable energy activities.

7.0.20 Therefore, it is clear the redevelopment of Pembroke Port Gate 4 will contribute to the policy objective of delivering physical regeneration and employment opportunities to disadvantaged communities.

7.1 Summary

7.1.1 This chapter has considered whether the proposed development will make a special contribution to policy objectives.

7.1.2 The proposed development will build on an existing energy cluster that has grown around the Pembroke Dock area, with the aim of developing a world class centre for marine energy. It will contribute towards Pembroke's offering of location, knowledge and expertise, and supply chain and connectivity benefits, and will help to nurture developing marine energy technologies

7.1.3 It is reasonable to assume the PDM project as a whole will have an agglomerative effect on activity in the marine energy industry, given how specialised the sector is, and how limited testing sites are for the sector's technology. This emphasises the need for sufficient employment floorspace to accommodate this activity, and the proposed development will deliver this floorspace through the redevelopment of Pembroke Port Gate 4.

7.1.4 The current reliance of Pembrokeshire's energy sector on non-renewable sources presents the likelihood of future job losses as these energy sources come under an increased regulatory burden. The opportunity for sector diversification delivered by the proposed development would ensure that local labour markets are buffered from future job losses in non-renewable energy activities.

7.1.5 Therefore, it is clear the redevelopment of Pembroke Port Gate 4 will contribute to the following policy objectives:

Figure 7.1 – Summary of key policy objectives

Theme	Source(s)
Tackling climate change by reducing greenhouse gas emissions that cause climate change, and supporting the transition towards low carbon energy generation	Climate Change Act 2008 The Clean Growth Strategy Well-being of Future Generations Act (Wales) Prosperity for All: Economic Action Plan Planning Policy Wales Energy Wales: A Low Carbon Transition
Capitalising on the economic opportunities for Wales and Pembrokeshire arising from renewable energy, and supporting the development of innovative business and technology clusters of low carbon activities	Prosperity for All People, Places, Futures – The Wales Spatial Plan Swansea Bay City Region Economic Regeneration Strategy Swansea Bay City Region City Deal Pembrokeshire County Council Local Development Plan Pembrokeshire Economic Development Strategy and Action Plan
Ensure the planning process acts as an enabler for physical development that supports the low carbon energy sector	Prosperity for All Planning Policy Wales Swansea Bay City Region Economic Regeneration Strategy Pembrokeshire County Council Local Development Plan
Delivering physical regeneration and employment opportunities to disadvantaged communities	Well-being of Future Generations Act (Wales) Planning Policy Wales People, Places, Futures – The Wales Spatial Plan Energy Wales: A Low Carbon Transition

8 Conclusion

- 8.0.1 The current site at the Gate 4 area of Pembroke Port is under utilised. Furthermore, in the absence of the investment associated with the proposed development it is expected the premises will continue to be used by current tenants, although a lack of alternative private investment will lead to deterioration of the units, and eventually to the site becoming redundant.
- 8.0.2 The construction of the proposed development will have a significant positive impact on the construction sector in Pembrokeshire. The £36.2 million investment will support local employment and supplier activity. The quantitative assessment of construction phase impacts is summarised in the table below.

Figure 8.1 – Summary of construction phase gross direct and net additional economic impacts (Pembrokeshire)

	Annual	Total
Gross Direct Economic Impacts		
Jobs (person years)	68 – 101	203
Wages	£2.1–£3.1 million	£6.3 million
GVA	£5.4–£8.1 million	£16.1 million
Net Additional Economic Impacts		
Jobs (person years)	65–98	195
Wages	£2.0–£3.0 million	£6.1 million
GVA	£5.2–£7.8 million	£15.5 million

Source: HJA analysis

- 8.0.3 The operation of the proposed development will deliver major positive impacts on the energy sector in Pembrokeshire. This will primarily be through employment opportunities that will be enabled by the provision of suitable workspace for the manufacture of floating offshore wind and wave energy devices. The quantitative assessment of the operational phase impacts is summarised in the table below.

Figure 8.2 – Summary of operational phase gross direct and net additional economic impacts (Pembrokeshire)

	Annual
Gross Direct Economic Impacts	
FTE jobs	453–1,219
Wages	£14.4–£40.6 million
GVA	£26.6–£67.7 million
Net Additional Economic Impacts	
FTE long term jobs	288–975
Wages	£10.1–£33.6 million
GVA	£16.7–£53.6 million

Source: HJA analysis

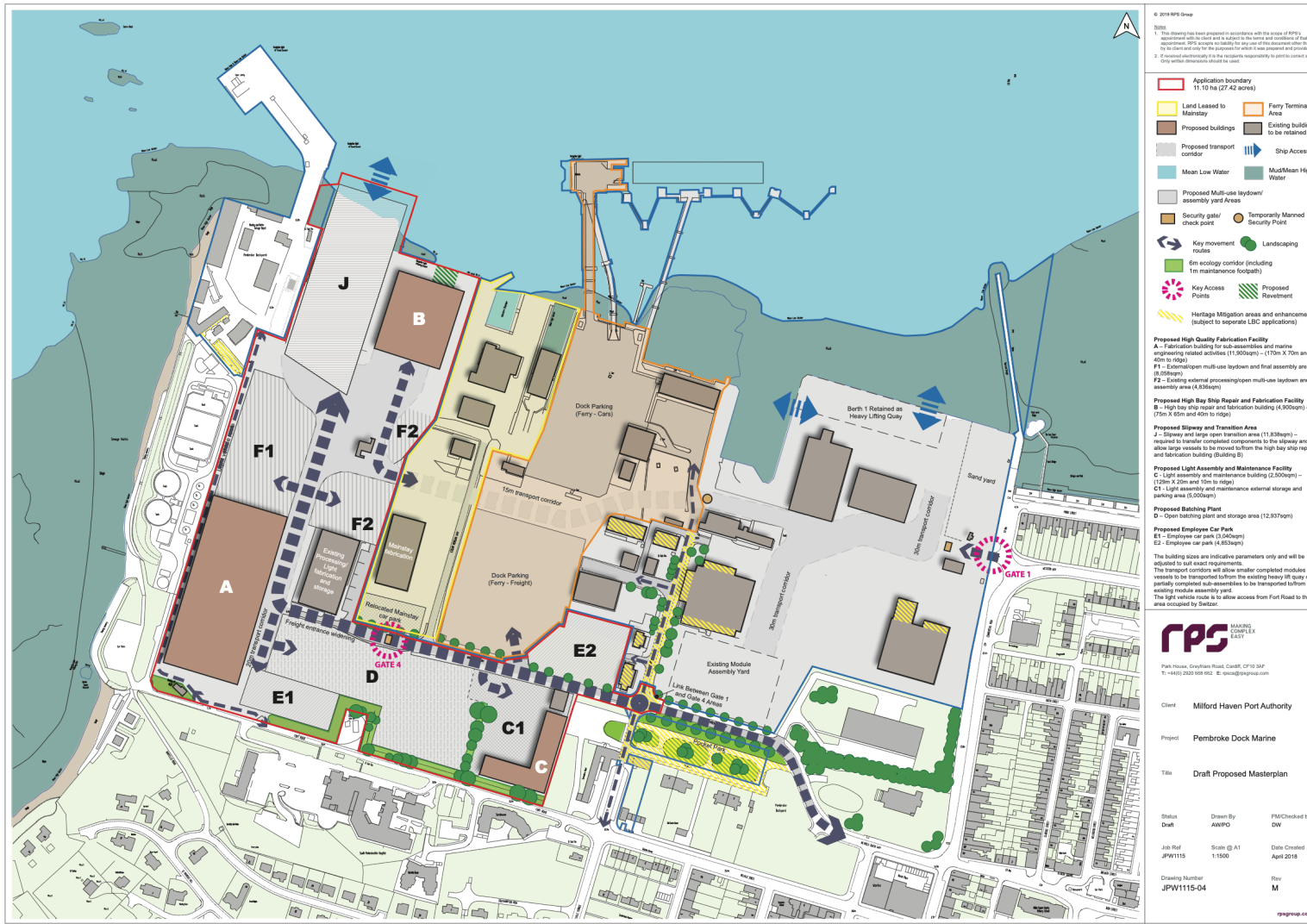
- 8.0.4 The PDI project offers a singular opportunity to support the marine energy sector in Wales. Pembrokeshire has a combination of environmental conditions (offshore wind and wave energy

potential) and existing energy sector activity (including test sites), as well as infrastructure and associated supply chain activity, that is unique within Wales.

- 8.0.5 A significant level of investment in wave and floating offshore wind energy technologies is highly unlikely to occur should the application for the proposed development be rejected. Given the current under-utilisation of the site, it should be seen as a highly suitable location for receipt of the investment to deliver the proposed development.
- 8.0.6 The proposed development will build on an existing energy cluster that has grown around the Pembroke Port area, with the aim of developing a world class centre for marine energy. It will contribute towards Pembroke Port's offering of location, knowledge and expertise, and supply chain and connectivity benefits, and will help to nurture developing marine energy technologies.
- 8.0.7 It is reasonable to assume the PDM project as a whole will have an agglomerative effect on activity in the marine energy industry, given how specialised the sector is, and how limited testing sites are for the sector's technology. This emphasises the need for sufficient employment floorspace to accommodate this activity, and the proposed development will deliver this floorspace.
- 8.0.8 The current reliance of Pembrokeshire's energy sector on non-renewable sources presents the likelihood of future job losses as these energy sources come under an increased regulatory burden. The opportunity for sector diversification delivered by the proposed development would ensure that local labour markets are buffered from future job losses in non-renewable energy activities.
- 8.0.9 Therefore, the redevelopment of Pembroke Port Gate 4 will make a notable contribution to the following key policy objectives:
- Tackling climate change by reducing greenhouse gas emissions that cause climate change, and supporting the transition towards low carbon energy generation
 - Capitalising on the economic opportunities for Wales and Pembrokeshire arising from renewable energy, and supporting the development of innovative business and technology clusters of low carbon activities
 - Ensuring the planning process acts as an enabler for physical development that supports the low carbon energy sector
 - Delivering physical regeneration and employment opportunities to disadvantaged communities

Appendix 1

Figure A1 – Draft Proposed Masterplan RevM



Source: RPS