



SOUTH WEST
**MARINE
ENERGY**
PARK

Unlocking the potential of the global marine energy industry

The **SOUTH WEST MARINE ENERGY PARK** is:

- ▶ a collaborative partnership between local and national government, Local Enterprise Partnerships, technology developers, academia and industry
- ▶ a physical and geographic zone with priority focus for marine energy technology development, energy generation projects and industry growth

The geographic scope of the **South West Marine Energy Park (MEP)** extends from Bristol to Cornwall and the Isles of Scilly, with a focus around the ports, research facilities and industrial clusters found in Cornwall, Plymouth and Bristol. At the heart of the **South West MEP** is the access to the significant tidal, wave and offshore wind resources off the South West coast and in the Bristol Channel.

The core objective of the **South West MEP** is to:

- ▶ create a positive business environment that will foster business collaboration, attract investment and accelerate the commercial development of the marine energy sector.

“The South West Marine Energy Park builds on the region’s unique mix of renewable energy resource and home-grown academic, technical and industrial expertise. Government will be working closely with the South West MEP partnership to maximise opportunities and support the Park’s future development.”

Rt Hon Greg Barker MP, Minister of State, DECC



The South West Marine Energy Park prospectus

Section 1 of the prospectus outlines the structure of the **South West MEP** and identifies key areas of the programme including measures to provide access to marine energy resources, prioritise investment in infrastructure, reduce project risk, secure international finance, support enterprise and promote industry collaboration. It also highlights the **South West MEP’s** intention to work closely with industry, UK government, other regions and national bodies.

Section 2 of the prospectus provides more detail on some of the key assets, resources and capabilities that make the South West a natural base for this exciting industry.

Section 1

South West Marine Energy Park

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This is the first edition of the **South West MEP** prospectus. A second expanded edition will be produced with further detail on the **South West MEP** Steering Board and programme.

Introduction

The launch of the **South West Marine Energy Park (MEP)** marks an exciting new phase in the development of the marine energy industry in the South West of England. The **South West MEP** will provide a focus for industry and investment in order to generate jobs and business opportunities for the South West economy as well as secure low carbon energy. It will also help to cement the UK's position at the centre of the emerging global industry.

The **South West MEP** designation recognises the superb physical assets and resources in the South West as well as the high concentration of research facilities and industrial excellence. The designation also recognises the important collaborative partnership that has been created in the South West between government, Local Enterprise Partnerships, public sector, universities and industry.

The close proximity of resources and infrastructure, together with a strong industry and research base, creates a unique environment which the **South West MEP** will harness to accelerate the commercialisation of new technology and sustain industrial growth.

Building on strength

In the past seven years the South West has invested over £100 million to provide world leading research and demonstration facilities. These include Wave Hub, the largest consented demonstration area for marine energy technologies in the world, the FaB Test nursery site in Falmouth Bay and a world class hydrodynamic test facility in the new Marine Sciences building which will open later this year in Plymouth. These facilities, added to the research capability and extensive facilities available through the region's universities and in the private sector, ensure that the South West is able to provide a 'Technology Pathway' to support the development of new technology from concept design, prototype and component testing through to full scale demonstration.

As the marine energy sector now focuses on the challenge to commercialise new technology, the South West has the ambition and commitment to play a leading role to help bring wave and tidal energy technologies to the global market and deliver long term competitive advantage for the UK economy.

Achieving this objective will require a long term programme of support for the industry within the South West and other regions, backed by national government and enabling policies as part of the overall UK Marine Energy Programme. This prospectus highlights the commitment of the South West to play its role in supporting the commercial development of marine energy technology. In the coming months, the South West MEP partnership will be working with the UK government, regional partners and industry to define in more detail the programme actions needed and to put in place the funding and governance structure to ensure that they are delivered.



“ Cornwall's marine energy programme is reinforced by more than a thousand years of industrial heritage. The land and the sea have provided the foundation of Cornish entrepreneurship in engineering and innovation, recognised across the world. Now, in the 21st century, Cornwall continues to provide the perfect balance between resource, people and infrastructure supporting the South West Marine Energy Park and unlocking the potential of a global industry. ”

Cllr Chris Ridgers, portfolio holder for economy and regeneration, Cornwall Council



“ The opportunity for growth and increased commercialisation in marine renewable energy, which underpins the ethos of the South West Marine Energy Park, represents a major opportunity to help Plymouth's economy generate investment and jobs. Plymouth has world-class research and development expertise in this field along with a strong marine business base and advanced manufacturing sector and looks forward to working closely with its private and public sector partners to make the South West Marine Energy Park a success ”

Cllr Vivien Pengelly, leader, Plymouth City Council

Creating a global industry

The marine energy industry is at an exciting and critical stage in its development. After a period of intense development, the leading technologies are now moving rapidly to deploy full scale demonstration and early commercial projects. The industry must now focus on the challenge of commercialisation.

The industry must prove that the technology works at a commercial scale in a challenging environment. It must also prove that the technology can be cost competitive with other forms of energy generation and can attract the levels of investment necessary to establish an advanced manufacturing capability, backed by the warranties and financial guarantees that the market will require for commercial projects. In order to do this, the industry requires financial and political support, physical infrastructure and willingness by all parts of the industry - technology developers, supply chain companies, industrial partners, utilities and investors - to collaborate, co-invest and share risk.

Bringing a product to market is a challenge for any new technology. However, if the marine energy industry can reach its commercial potential then the opportunities are huge. If fully exploited, it is estimated that UK wave and tidal stream resources could provide over 36 GW of renewable energy capacity, generating over 20 per cent of the UK's electricity demand.

The prize is not just the potential to deliver a significant proportion of the UK's future energy requirements, it is also to establish the UK as the centre of a new and exciting global industry with the potential to export expertise and products to a worldwide market. The Carbon Trust has estimated that, if the UK can maintain its position at the centre of the industry, the marine energy sector could be worth over £70 billion to the UK economy by 2050 and create tens of thousands of jobs.

The South West's ambition is to enhance its position as a leading centre within the global industry, both in terms of exploiting the region's available energy resources, and as a centre for research, technology development, engineering and industry. If this can be achieved, a recent study¹ has estimated that the industry could be worth over 4.5 billion GVA to the South West's economy and generate an average of over 5000 jobs in the years from 2020 onwards. There is an even higher potential to export knowledge and products to the global market.

¹ Offshore Renewables Resource and Development – South West Economic Impact Assessment November 2010



The UK is now at the forefront of what could be a global industry with the potential to export expertise, skills and technology around the world. Such is the ubiquitous nature of wave and tidal resources that we are already seeing opportunities and potential competition from emerging markets in North and South America, Korea, Japan, China and Australasia as well as in the UK and Europe.

Marine Energy Parks

A catalyst for commercial expansion

The full commercial expansion of the industry is expected to occur from 2020 onwards once the industry is able to deliver utility scale international energy projects backed by an advanced manufacturing capability. The shape and geographic focus of the industry will, however, be determined by the investments made in the next 10 years.

To support industry expansion and secure the UK's position as the leading worldwide centre for marine energy, the government has established a National Marine Energy Programme. This programme includes technology "push" mechanisms including capital grants and the investment in research facilities such as EMEC, NAREC and Wave Hub. Critically the programme also includes an attractive market incentive through the Renewables Obligation mechanism which is designed to support early commercial projects and draw in private sector investment.

Underpinning the policy framework, the government has announced the intention to create a number of marine energy parks around the UK as a means to bring together technology developers, industry and investors within focused geographic areas.

Each marine energy park will build on its own unique capabilities and local priorities. At their core they will have access to renewable energy resources and a specific objective to support the commercial expansion of the industry by providing infrastructure, fostering collaboration and creating a positive business environment to attract investment.



The government's proposal to increase the level of ROC banding support from marine energy technology to 5 ROCs across the UK is designed to accelerate the deployment of demonstration and early commercial projects up to 30 MW. UK marine energy capacity could reach between 150 MW and 300 MW by 2020.



The first area to be designated as a Marine Energy Park is the South West of England, with industry and research clusters focused in Cornwall, Plymouth and Bristol. A second MEP is planned around Orkney and Caithness in Scotland with further MEPs expected in other resource rich areas around the UK, such as Northern Ireland and Wales.

“ The Coalition came into office with a clear objective to raise UK ambition for marine energy and a pledge to transform the prospects of the UK marine energy industry. Our new policy to create Marine Energy Parks has been central to this vision and will drive innovation and growth through the clustering of marine activities. Industry and local partners, particularly in the South West, swiftly embraced this call to action and have worked hard with DECC to make progress towards realising our ambitions. So I am delighted that the South West is the first region to put together a prospectus for the creation of the UK's first Marine Energy Park and I congratulate them for all their outstanding work. ”

The South West Marine Energy Park

The **South West MEP** is:

- ▶ a collaborative partnership between local and national government, Local Enterprise Partnerships, technology developers, academia and industry
- ▶ a physical and geographic one with priority focus for marine energy technology development, energy generation projects and industry growth

A collaborative partnership

The **South West Marine Energy Park** has been established by a core partnership led by: Cornwall Council and Plymouth City Council; the Cornwall and Isles of Scilly and Heart of the South West Local Enterprise Partnerships; Regen SW, Plymouth University and the University of Exeter; working with Department of Energy and Climate Change and representatives from the marine energy industry.

The wider **South West MEP** partnership now consists of over 50 public and private sector organisations, including representatives from supply chain companies, technology developers and industrial partners. The partnership is in the process of establishing a partnership steering board that will provide strategic leadership and represent the marine energy park and local industry at a national and international level. As the **South West MEP** develops, we expect the partnership to expand and we welcome any business or organisation - regional, national or international - that wishes to engage with the partnership.

As well as creating a natural collaborative network, the **South West MEP** partnership will help to set the strategic priorities for future investment and growth in the South West. It will also provide a strong voice for the industry and region within the national programme and policymaking areas. The **South West MEP** partnership will work with other marine energy parks, industry and other national bodies to help shape UK policy in areas which will enable commercial development of the sector including:

- future market incentives
- initiatives to reduce project risk
- marine spatial planning and consenting
- infrastructure investment including grid
- access to finance
- support for enterprise and innovation
- stakeholder engagement and community support
- international market development

“ Marine Energy Parks will need to be brought together by local partnerships and businesses looking to focus on developing a marine energy industry in their area and I am very pleased that the South West is taking the initiative to create its own Marine Energy Park. ”

The Prime Minister, The Rt Hon David Cameron MP



The development of the **South West MEP** has been supported by local and national industry.

A physical and geographic hub for innovation and industry

The geographic scope of the **South West MEP** covers the South West of England peninsula from Bristol to Cornwall and the Isles of Scilly, with a focus around the hub ports of Falmouth/Hayle, Plymouth and Bristol.

At the heart of the **South West MEP** is the access to the significant tidal, wave and offshore wind resources off the South West coast and in the Bristol Channel. The variety of energy resources within the park means that there is a broad portfolio of investment opportunities for projects in offshore wind, wave and tidal stream technologies, with future projects using floating wind and tidal range technologies.

The combination of Cornwall and Plymouth, with strong ties to Bristol, builds on the existing commercial relationships within the industry. It also provides the **South West MEP** with a very broad range of capabilities and infrastructure covering marine operations and engineering, marine and environmental sciences, advanced manufacturing, composites, aerospace and defence as well as access to service industries covering consultancy, legal and finance.

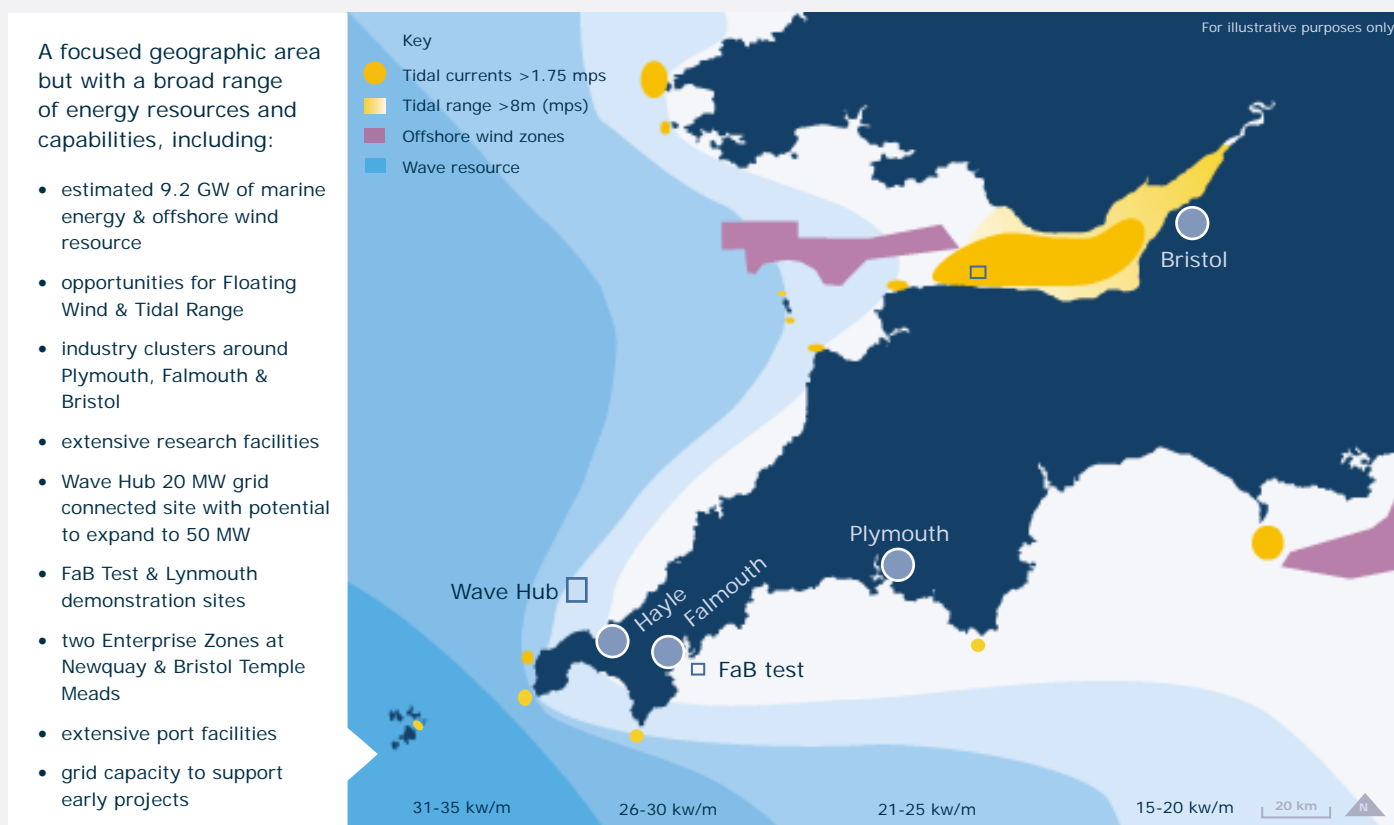
The close proximity of resources and infrastructure, together with a strong industry base and research facilities, creates a unique environment to support the development of new technology while also providing the scale and range of market opportunities needed to attract investment and sustain industrial growth.

These capabilities and the infrastructure to support them are described in more detail in Section 2 of this prospectus.

The **South West MEP** will work in close association with other marine energy parks and centres for marine energy across the UK and Europe. The partnership looks forward to building close relationships with the industry in resource rich areas such as Northern Ireland, Wales, Southampton/Isle of Wight, and Scotland where the partnership will work closely with the Orkney and Caithness MEP.

“ The South West has a unique advantage. It has extremely viable energy resources close to excellent port and grid infrastructure, research facilities and vital supply chain companies. The close proximity of all these elements makes the South West the perfect place for a marine energy park and the launch of a new marine energy industry. ”

Angus Norman, chief executive, OPT Ltd



Accelerating the commercialisation of the industry

The core objective of the **South West MEP** is to create a positive business environment that will foster business collaboration, attract investment and accelerate the commercial development of the marine energy sector.

To achieve this, the **South West MEP** will work with government, national bodies and industry to develop a programme of actions to:

- ▶ enable access to marine energy resources and de-risk project investment
- ▶ provide world class facilities for technology development
- ▶ prioritise support for enterprise and innovation
- ▶ invest in port, grid and manufacturing infrastructure
- ▶ build a collaborative supply chain and skills base

Enabling access to marine energy resources and de-risking project investment

The **South West MEP** will work with government, national and local stakeholders to identify areas for potential commercial development and - in collaboration with industry and project investors - to effectively reduce project risk.

The South West completed a resource assessment study in 2010, which is highlighted in Section 2 of the prospectus and is currently working with the Crown Estate to identify Strategic Resource Areas (SRAs) which will form the basis for future commercial projects. This will in turn lead to the development of a commercial development plan for the **South West MEP**, and the identification of opportunities for early commercial projects which could be brought forward using, for example, the grid infrastructure available at Wave Hub and at other coastal sites.

In order to reduce project risk, the **South West MEP** will work with national agencies, such as the Marine Management Organisation, and local stakeholders and communities to help streamline planning processes and remove barriers for project developers. An early priority will be to work with government and industry to develop a means to reduce barriers created by the need to finance high insurance and decommissioning costs.



Established as a 20 MW demonstration site, the cable and grid infrastructure at Wave Hub could be enhanced to provide an additional 30 MW of energy capacity to support early commercial arrays



“ The Cornwall and Isles of Scilly Local Enterprise Partnership supports the development of the South West Marine Energy Park, a project that uses the natural environment in a sustainable way to help drive private sector-led growth, investment and job creation within the marine industry. We look forward to working with our neighbouring LEPs with marine interests on this project. ”

Chris Pomfret, chairman, Cornwall and Isles of Scilly Local Enterprise Partnership

Providing world class facilities for technology development

In the past seven years the South West has invested over £100 million to provide world leading research and demonstration facilities including: Wave Hub, the largest consented demonstration area for marine energy in the world; the FaB Test nursery site in Falmouth Bay; and a world class Hydrodynamic test facility in the new Marine Sciences building which will open later this year at **Plymouth University**. The **PRIMaRE** programme has also funded specialist research facilities such as the South West Mooring Test Facility (SWMTF) and Dynamic Marine Component Test facility (DMAC) at the **University of Exeter**. These facilities complement existing centres for research such as the National Composites Centre.

A key role for the **South West MEP** partnership will be to foster collaborative research and ensure that investment continues to be prioritised to create a "Technology Pathway" for marine energy from concept design to commercial deployment. The **South West MEP** will explore opportunities to establish a cross LEP innovation fund that could be used to provide match funding for Technology Strategy Board (TSB) and other UK and European grant schemes.

The **South West MEP** will work closely with national bodies such as the TSB, Energy Technology Institute, Department for Business Innovation and Skills (BIS), Department of Energy and Climate Change (DECC) and the Offshore Renewable Energy Catapult to ensure that South West research facilities and assets are effectively utilised, and integrated within the overall UK technology development programme.

Building on the successful launch of the FaB Test nursery site in Falmouth Bay, an early priority for the **South West MEP** is to develop a similar, grid connected, tidal demonstration site at Lynmouth in North Devon, and to support the proposal to establish a tidal technology integration centre in Bristol. The **South West MEP** will also provide support for technologies that will enable the marine energy and offshore wind industry to achieve significant cost reduction using new foundation and installation concepts for wave and tidal energy and floating wind technology.

Prioritise support for enterprise and business growth

The Marine Energy Park designation is an important signal of the government's commitment to support and prioritise enterprise and industry within the marine energy sector in the South West. The **South West MEP** partnership will therefore be working closely with DECC, BIS, UKTI and other national bodies to maximise the effectiveness of the Marine Energy Park to attract future funding and investment.

A priority for the **South West MEP** is to secure additional incentives for business investment including such mechanisms as business rate reductions, higher levels of capital allowances, Regional Growth Fund and other enterprise grants, inward investment and access to the Green Investment Bank.

As key partners within the **South West MEP**, the Cornwall and Isles of Scilly and the Heart of the South West Local Enterprise Partnerships will help to prioritise and channel additional support for the marine energy sector. This will include continuing to target European funding programmes including the anticipated Transitional Fund programme which is likely to apply to the majority of the **South West MEP** area after 2014. The **South West MEP** will also work closely with Local Enterprise partnerships to make full use of Enterprise Zones, developing bids for future Regional Growth Fund schemes and leveraging other initiatives such as the Growth Acceleration and Investment Network.



The South West is able to provide a 'Technology Pathway' to support the development of new technology from concept design, prototype and component testing through to full scale demonstration.

“ The Heart of the South West LEP fully and enthusiastically supports this very exciting initiative. Plymouth has world quality marine credentials. To see such a powerful alliance coming together to tackle this challenging opportunity deserves support from all those committed to delivering a prosperous future. This approach also speaks volumes for the strength of partnership working; this is a brilliant concept which can boost the sub-regional economy. ”



Tim Jones, chairman, Heart of the South West LEP

Investing in infrastructure to support large scale deployment

The South West has a wide variety of port infrastructure available to support the technology development, manufacture, installation and ongoing operations and maintenance for marine energy projects. A key advantage for the South West is the close proximity between the ports, areas of high energy resource and centres of research and industry. This creates a highly efficient and low cost environment from which to commercialise new technology.

It is anticipated that the growth of the marine energy sector will lead to the renaissance of the South West's marine and engineering industries. The **South West MEP** will therefore support proposals from port operators, local and national government and industry to develop the region's port, engineering and manufacturing infrastructure.

Port development

Pages 28 to 34 of this prospectus give an overview of the existing port infrastructure and highlight some of the key areas of development already planned.

Falmouth provides an extensive deep water port supported by a cluster of marine operations companies and is superbly placed to deploy wave and floating wind technology off the South West peninsula. Cornwall Council, Falmouth Harbour Commissioners and A&P Falmouth are currently developing a port master plan that includes the creation of a new renewables quayside and laydown area alongside the existing dry dock and engineering facilities.

The **Port of Plymouth** is one of the UK's largest and most diverse ports and is of fundamental importance to the economy of the area. Future investment to build on existing infrastructure, such as the Devonport South Yard, combined with existing strengths in marine sciences, marine engineering and manufacturing, will enable the port and city to transition its defence and shipbuilding capabilities to support new industries from hi-tech super yachts to marine energy technologies.

Bristol Port is one of the fastest growing commercial ports in the UK with extensive land space available to support project mobilisation and construction activities. Adjacent to the port is the Avonmouth & Severnside industrial area, with 324 ha of land available for development and which, supported by a £5 million RGF Revolving Infrastructure Fund, could be used for the offshore energy sector.

Grid Infrastructure

As a net importer of electricity, the South West is fortunate to have grid infrastructure with capacity to meet energy demand locally without increasing the overall grid transmission costs. Along the coast there are a number of access points such as the sub-stations at Hayle, Alverdiscott, Lynton and Hinkley which could provide an opportunity for early commercial expansion. Looking further ahead the South West grid will require additional reinforcement; however, the development of marine energy, nuclear energy and offshore/floating wind offers an opportunity for a coordinated grid investment programme using shared "supergrid" infrastructure.

A key role for the **South West MEP** will be to understand the marine energy industries future requirements and coordinate the development of both port and grid infrastructure across the region to ensure that it is fit for purpose to support the long term growth.



Hayle Marine Renewables Business Park

Cornwall Council is in the process of delivering a £15 million infrastructure package (due for completion Autumn 2012) to access the proposed Marine Renewables Business Park (MRBP) on North Quay at Hayle Harbour. Cornwall Council has also secured an additional £7 million from its capital programme (plus potential European Regional Development Funding) to support investment in marine renewable energy in Cornwall including the Hayle MRBP.



Marine businesses in the South West generate an annual turnover of £1.3 billion and include nearly 30 per cent of the UK's ship building and repair workers. Recruitment in the South West provides an excellent opportunity for apprenticeships and training through local colleges and skills centres. These lead the way working with industry to identify skills gaps, and meeting them with talent, education and training.

Building a collaborative supply chain and skills base

As the marine industry develops, the supply chain will not only be essential for manufacturing and deployment, but will also be one of the key drivers of commercialisation. A collaborative and cost efficient supply chain will be a catalyst to drive down costs and, in many areas, will lead the development of innovative solutions.

The South West has excellent supply chain companies and technology development partners. This is an area of strength which is already helping the industry with companies such as **Mojo Maritime, Seacore Fugro, A&P Falmouth, LDD, Supacat, Armada Hydraulics, J&S Marine, Marine Fabrications, Falmouth Divers, Babcock, IT Power, GL-Garrad Hassan, Keynvor Morlift** and many others, not only providing services to the industry but also demonstrating a willingness to co-invest to provide innovative and cost effective solutions.

Pages 36 and 37 of the prospectus highlight some of the supply chain companies who are making a name for themselves as leaders in the industry. A key role for the **South West MEP** will be to continue to nurture and build supply chain capability and skills in the region and foster collaboration between industry partners.

Jobs and Economic Opportunities

Regen SW has identified that there are at least 350 companies active, or with a high degree of potential, in the Marine Energy Sector. It is difficult to calculate the value of the sector within the overall economy, but a rough estimate suggests that the Marine Energy sector currently provides employment for between 300 and 500 people in the South West mainly working for technology developers, marine operations companies, consultancies, marine sciences and environmental, legal and financial, research and some manufacturing.

The rate of growth is strong with companies such as Mojo Maritime, A&P Armada Hydraulics and J&S Marine reporting strong market demand and recruitment.

The economic analysis produced by the ORRAD report has identified that the sector could eventually support over 5000 people in the South West in the period from 2017 – if the South West can realise its natural resource and economic potential.

The challenge for the **South West MEP** and its partners is to make this happen



Unlocking the potential of the global marine energy industry

The success of the **South West Marine Energy Park** will depend on its ability to attract industry and investment. This means creating the right environment for industry to grow and providing returns to investors, as well as working with the industry to reduce investment risk.

Investment will be attracted to the marine energy park because of the natural resources, infrastructure and assets that are available; and because of the positive business environment that the **South West MEP** will create. In addition the **South West MEP** intends to be a proactive partner to identify and secure additional finance and investment from both public and private sector sources.

The South West has a successful track record of accessing UK government and European funding streams. This includes for example £42 million secured to build the Wave Hub, £20 million to fund the establishment of the Peninsula Research Institute for Marine Renewable Energy and additional European funding to support the development of Hayle Port and £19 million Plymouth Marine Sciences building.

The **South West MEP** partners will continue to work with industry to support funding bids for national, local and European funds such as PF7/8 funding, European Transition funds, Regional Growth Funds and DECC's Marine Energy Array Demonstration (MEAD) fund. Working together across LEP and local authority areas will enable the **South West MEP** partners to combine funding streams and create, for example, match funding for future Technology Strategy Board competitions.

While public sector funding will continue to play an important role as the industry develops, the priority for the **South West MEP** will be to assist technology and project developers to access private sector finance. Increasingly this will mean targeting private capital, international investment and Sovereign Wealth funds, as well as working closely with private sector investment fund managers and organisations in the UK such as the Green Investment Bank.

Already, through the work of Plymouth University, the **South West MEP** is supporting the development of closer collaboration between the UK and Canadian Federal Governments, and the Provinces of Nova Scotia and British Columbia with the ambition to establish a co-investment fund and other sources of high leverage technical and commercial collaboration.

Marine energy and offshore wind are already global industries with a high degree of international trade and investment. As well as targeting international finance the **South West MEP** will seek to build on the very close ties that already exist with similar maritime regions such the UK, North America and Europe. Maintaining and enhancing these ties will be vital to encourage cross-border collaboration and open new markets to sustain industry growth. Already partners within the **South West MEP** are involved with European initiatives such as the MERIFIC and Atlantic Power Cluster projects.



Targeting Investors

In September 2011 Regen SW hosted a "meet the investor" event at the House of Commons attended by over 150 delegates from the renewable energy industry and financial sector

The partners within the South West MEP are committed to working together to unlock the potential of the global marine energy industry.

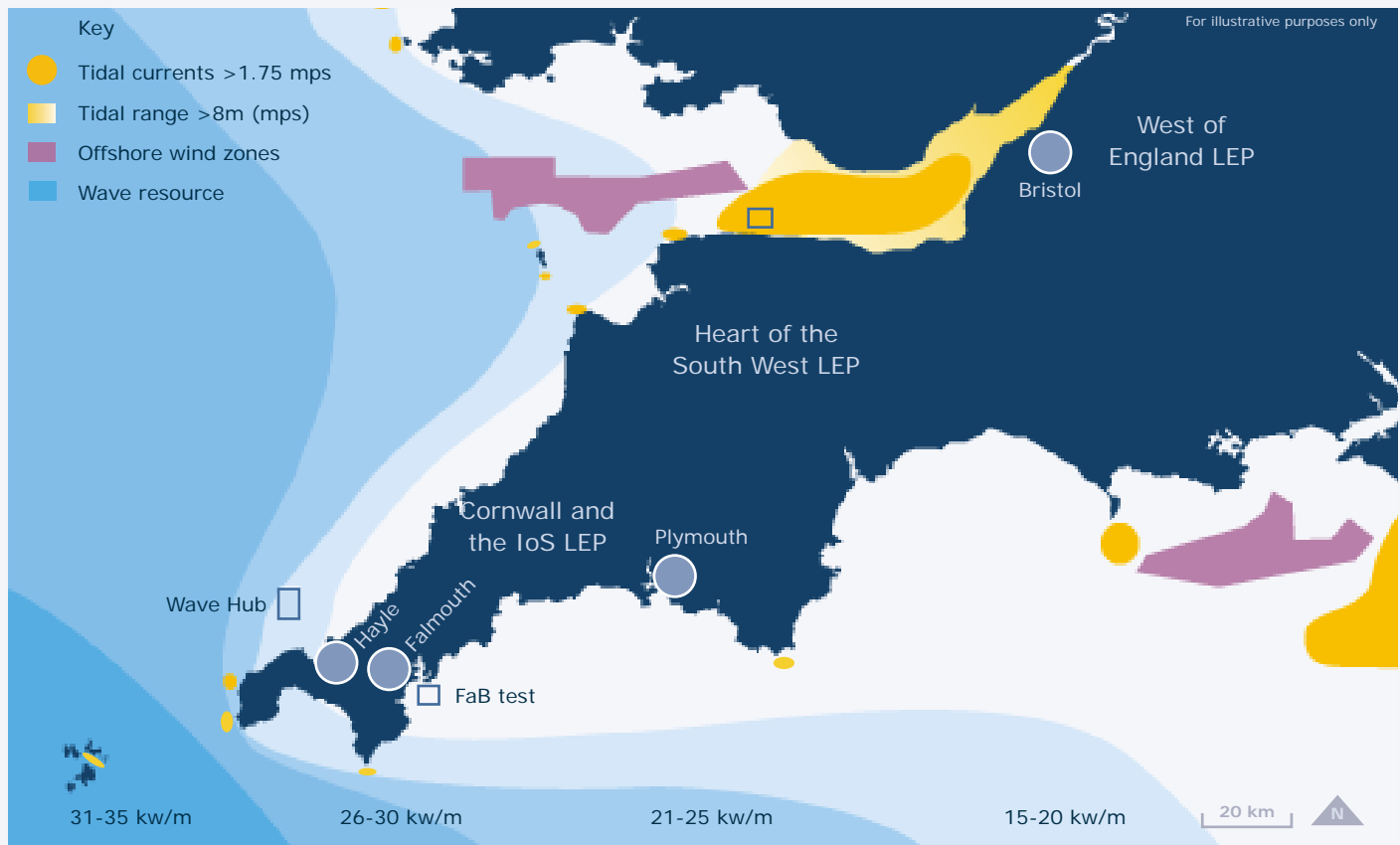
Section 2

South West assets, resources and capabilities



A portfolio of energy resources

At the heart of the **South West MEP** are the significant wave, tidal and wind resources found off the South West coast and in the Bristol Channel. The variety of energy resources within the park means that there is a broad portfolio of investment opportunities covering near term projects in offshore wind, wave and tidal stream technology development, with the potential for future projects utilising floating wind, enhanced tidal flow and tidal range technologies



Facing the broad Atlantic swell and prevailing winds from the west, the South West has an energetic marine environment with strong winds and big oceanic waves. The biggest waves are found off the North Cornish coast, around the Isles of Scilly and out towards the Western Approaches. It also has a very large tidal range, especially in the Bristol Channel, which generates good tidal stream flows in key areas off North Devon, along the south coast from Portland and around the region's headlands.

In 2010, the South West of England Regional Development Agency published the **Offshore Renewable Resource Assessment and Development (ORRAD)** report, which gave an analysis of the potential energy resources which could be developed in the near-term off the South West coast. The study team led by PMSS and Marine Energy Matters based their analysis on a set of industry supported assumptions concerning levels of resource, timescales, energy (array) density and economic constraints. These assumptions were then used to generate an energy resource map of the region taking into consideration key constraints such as shipping, radar, military exercise areas etc.

The ORRAD baseline scenario gave a headline estimate of over 9.2 GW of offshore wind and marine energy capacity that could be installed by 2030. This figure is conservative in that the report did not consider tidal range opportunities, projects greater than 50 km from shore and the enormous potential offered by new floating wind technology.

The South West MEP is currently working with The Crown Estate on a much wider review of UK Strategic Resource Areas (SRAs) which will be used to identify key strategic areas for marine energy and to prioritise future leasing for commercial projects. A priority for the **South West MEP** will be to work with national bodies, industry and local stakeholders to define a commercial development plan for the sector.



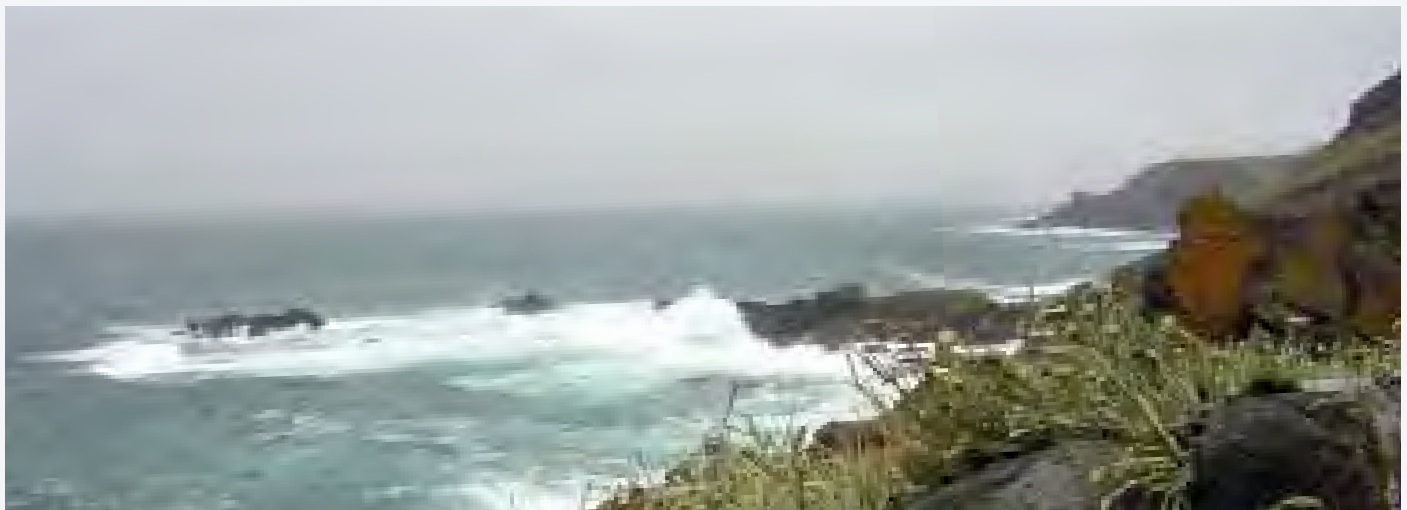
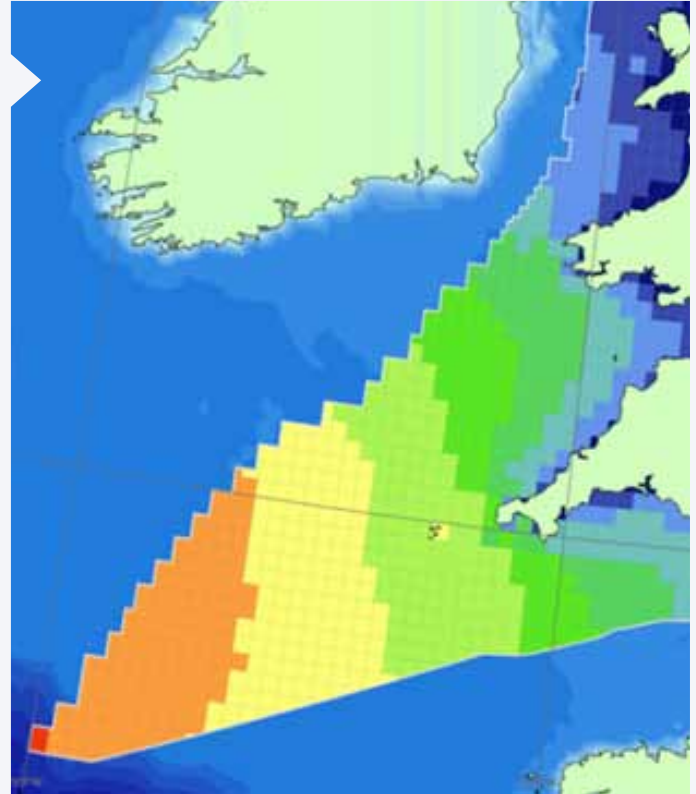
Offshore Renewable Resource Assessment and Development (ORRAD) project

South West wave climate

The peninsula of South West England juts into the Atlantic and faces the prevailing westerly oceanic swell. These long swells pack an enormous amount of energy – with a typical average range of 15-25 kw/m (kilowatts per metre of wave face) in the area around Wave Hub off the north Cornish coast, increasing to 35-40 kw/m in the area around the Isles of Scilly. While the waves are powerful, South West England benefits from less extreme storm conditions that would challenge the “survivability” of the devices. This is especially important in the early stages of their development.

It is most likely that early commercial wave farms of 10-30 MW will be located off the North Cornish coast with grid connection into the sub-station at Hayle. The Isles of Scilly also offers an opportunity for early stage developers with excellent wave resources and the potential to provide the islands with self sufficient energy or export back to the mainland. From 2018 onwards, larger wave farms of 100 MW plus could be sited in deeper water to the west of Wave Hub and out into the western approaches where energy levels reach 25-35 kw/m.

The ORRAD report baseline scenario estimated that over 1,240 MW of Wave Energy projects could be developed by 2030. This figure could be considerably higher if wave energy technology is successful in driving down costs to become competitive with offshore wind and to make it economically viable to exploit resources greater than 50 km from shore.



“ Looking ahead to future wave and tidal leasing around the UK, The Crown Estate is delighted to be working with Regen SW and others to understand the potential for project development off the South West of England as the South West Marine Energy Park is launched. ”

John Callaghan, wave and tidal programme manager, Crown Estate

Tidal stream and tidal range

At 14 meters the Bristol Channel has the second highest tidal range in the world. This great tidal surge through the channel and Severn Estuary could potentially provide 5 per cent of the UK electricity needs and, although the feasibility of a large scale barrage is now in doubt, there are opportunities for different tidal technologies to exploit this resource including lagoons, low head tidal bars, tidal fences and smaller barrages. The **South West MEP** is eager to support alternative tidal range and enhanced tidal flow technologies and will be working with our partners in Bristol and Wales to provide support for this sector.

While not as deep or energetic as other tidal sites around the world, the inner Bristol Channel also has significant tidal stream resource, with flow speeds in excess of 2-2.5 m/s along the North Devon and Somerset coast (Foreland Point to Bridgwater Bay). The ORRAD analysis identified that the inner Bristol Channel could support 600 MW of tidal energy capacity. A similar study conducted by the Welsh Assembly Government (MRESF Project) identified a potential tidal stream development area of over 40 km² off the south Welsh coast from Nash Point to Barry.

With a potential tidal demonstration site at Lynmouth (described on page 21), the Bristol Channel offers significant opportunities for tidal stream and enhanced flow technologies that are able to produce energy efficiently in shallower water depths and at moderate tidal flow rates. Such technologies would then be able to exploit the cost benefits of being closer to port infrastructure, grid capacity and centres of high energy demand.

Elsewhere in the South West, there are a number of other potential tidal stream development areas including a further 200 MW in the outer Bristol Channel, as well as the areas around Land's End, the Isles of Scilly and in the English Channel off Portland Bill. In total the ORRAD analysis identified over 1 GW of potential tidal stream resource with flow speeds greater than 2 m/s.

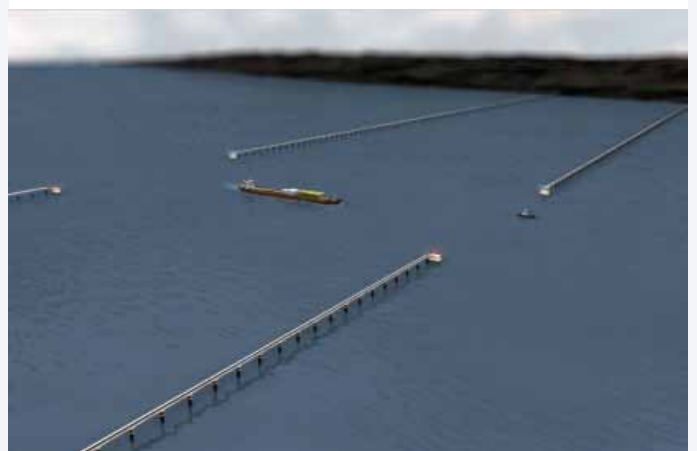
The **South West MEP** is also positioned to support tidal energy projects which are being developed in the Channel Islands and in North West France. The Alderney Renewable Energy (ARE) group has estimated that the island could have the potential to deploy 3 GW of tidal energy capacity and is currently working with a number of technology developers including Open Hydro. Continuing to develop close contacts with Brittany, Ifremer and the Paimpol test centre through pan-European projects such as MERIFIC and the Atlantic Power Cluster will be a central element of the **South West MEP's** international strategy.



Map and analysis by Marine Energy Matters

The Severn Embryonic Technology (SET) project was set up in 2009 to look at alternative tidal range technologies which could provide significant tidal energy with less environmental impact than a large scale barrage.

The study looked at a number of tidal resource technologies including lagoons' tidal fences, tidal bars and innovative enhanced flow technologies. Three of these technologies, IT power's *Tidal fence*, Rolls Royce's *Tidal bar* and VerdErg's *Venturi fence*, were recommended for further development.



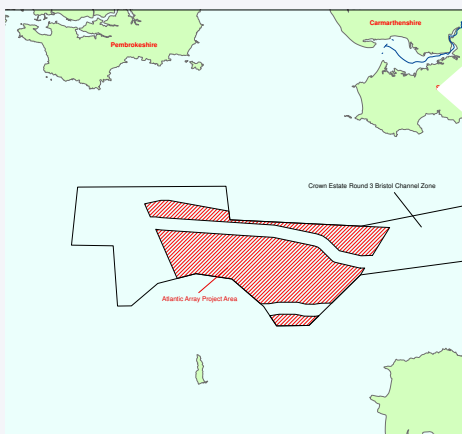
Offshore wind & floating wind technology

There are two major offshore wind farms in development in the South West. The 1.5 GW Atlantic Array in the Bristol Channel is being developed by RWE npower and the 0.9 GW Navitas Bay wind farm off the Dorset coast is being developed by Dutch utility company Eneco.

Both wind farms are planned to be constructed in the second half of this decade and together will require a capital investment of over £7 billion, by far the largest offshore projects to have been commissioned in the South West. The **South West MEP** will work closely with both developers and their tier one contractors to ensure that we have the grid and port infrastructure in place to support these projects and the supply chain skills necessary to maximise the economic potential for the UK.

Looking further ahead, there is significant potential for the expansion of offshore wind in the South West. The development of floating wind technology could provide a cost effective alternative to fixed foundations and would allow the deployment of wind turbines in the deeper waters to the west of the Atlantic Array Site and off the Lizard Peninsula. Indeed, depending on the rate of technology development and cost, we may see floating wind technology utilised for existing wind farm sites in the South West.

Recent studies by both the Carbon Trust and the Energy Technologies Institute have highlighted the massive potential opportunity for floating wind in the South West. The **South West MEP** will work closely with industry, regional universities and organisations such as the ETI and Technology Strategy Board to support the development and commercialisation of floating wind technology including the investigation of demonstration test sites.



The proposed 1.5 GW Atlantic Array project is under development in the Bristol Channel



Floating wind technology such as the HyWind Floating Turbine concept could be deployed in the South West

“ There is likely to be a considerable global market for floating wind turbines which can be developed in the UK. We see floating turbine technology being strategically important to the UK’s energy supply and its industrial strategy. ”

Dr David Clarke, chief executive, Energy Technologies Institute

A centre for technology development

The South West is already an established base for some of the world's leading marine energy technology developers such as Bristol based Marine Current Turbines and Tidal Generation Limited. These companies have found that the research facilities, access to quality engineers and the close community of marine energy interests have made a significant contribution to their success.

Alongside the fantastic research facilities and pool of graduates provided by the region's universities, there is also a high concentration of private sector consultancy and research organisations that specialise in innovation and technology development. International companies such as **Fraser Nash**, **AECOM**, **Halcrow**, **Environ** and **Parsons Brinkerhoff** have significant offices in the South West, as well as renewable energy specialists **GL-Garrad Hassan** and **IT Power**.

Within the supply chain, there are also innovative companies that are eager to participate in collaborative R&D projects as development partners. **Mojo Maritime** is a great example of a marine operations company that is now providing specialist hydrodynamic consultancy services and is a co-developer of innovative deployment and installation solutions.

South West companies and institutions are now involved in a large number of collaborative research projects, including the recent Technology Strategy Board projects involving wave energy technology developers **OWEL**, **OPT** and **Fred Olsen**, working with the Universities of Plymouth and Exeter alongside South West based companies **ITP**, **Mojo Maritime**, **Supacat**, **Keynvor Morlift** and **A&P Falmouth**. The collaboration between technology developers, universities, consultancies and innovative supply chain companies is a winning combination that is helping to accelerate technology development across the industry.

The **South West MEP** will continue to promote and support collaborative research across the industry as a means to enable marine energy industry to drive down costs. The **South West MEP** will work closely with national bodies such as the Technology Strategy Board, Energy Technology Institute, BIS, DECC and the Offshore Renewable Energy Catapult to ensure that South West research facilities and assets are effectively utilised, and integrated within the overall UK technology development programme.



Formed in 2005, Bristol company **Tidal Generation Limited (TGL)** has brought together a number of leading tidal stream experts to design and develop an innovative tidal energy device. TGL is now a wholly owned subsidiary of Rolls-Royce plc which has provided TGL with the investment and enhanced engineering capabilities to take it towards commercialisation.

In September 2010, TGL commissioned South West company Keynvor Morlift Ltd to install their 500 kW prototype device at the European Marine Energy Centre in Orkney, which has now delivered over 100 MWh to the grid. TGL is now developing the next generation 1 MW tidal stream turbine through an ETI partnership with GL Garrad Hassan, Plymouth Marine Laboratories, EDF energy, E.ON and the University of Edinburgh to be deployed at EMEC.



Cornish firm **OWEL (Offshore Wave Energy Limited)** has developed a unique wave energy device and following a series of successful trials has been awarded £2.5 million by the TSB to build a demonstration model of it. A world-class project team, including several South West based business partners, has been assembled to deliver this project and subject to the success of the present funding round, it will be deployed at Wave Hub in 2013.

Pathway for Technology Development



Concept

- Concept Design / Engineering
- Computer Based Modelling
- Technology assessment
- Economic modelling
- Intellectual property



Prototype

- Part scale and full scale prototype
- Hydrodynamic testing
- CFD Modelling and performance modelling
- Electrical systems and component design
- Sea trials and device deployment
- Prototype verification



Demonstration

- Full Scale and Array testing
- Engineering design
- Environmental Impact Assessment
- Reliability & Performance analysis
- Installation and foundation design and testing



Commercial

- Design for manufacture
- Cost reduction
- Warranty and certification



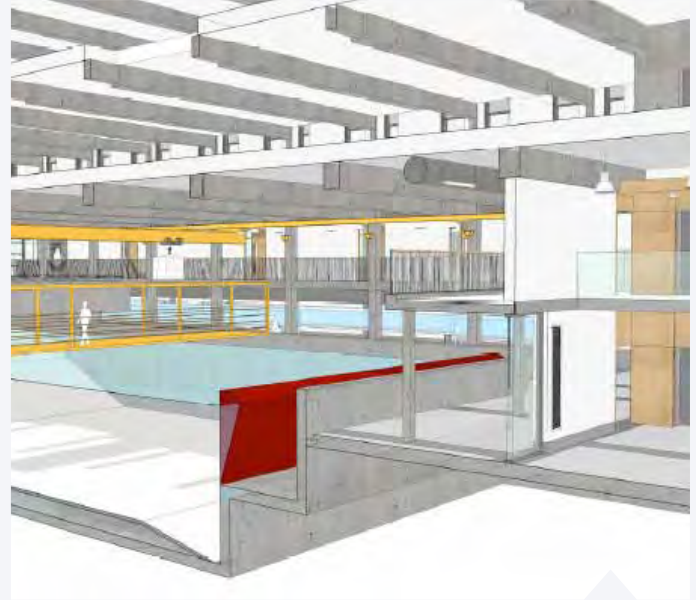
Hydrodynamic test facility

The new Marine Sciences building at Plymouth University, which opens in 2012, represents a £19 million investment in a state of the art research centre. This building will house dedicated technical support and office facilities for up to 150 marine institute researchers and technology developers. At the heart of the building is a new hydrodynamic test facility which incorporates two wave and tidal test basins that replicate shoreline and deep ocean environments and will be available for university research and private sector device developers.

It will be one of the most advanced hydrodynamic tanks in Europe and will provide model testing with combined waves, currents and wind conditions at scales appropriate for testing devices, arrays of devices, environmental modelling and coastal engineering. It will have the ability to generate short and long crested waves in combination with currents at any direction to the waves, and sediment dynamics, tidal effects and wind can be modelled.

To monitor and record the results of testing technologies, state-of-the-art instrumentation that allow experiments to be set up quickly and straightforward data acquisition are being installed. These include Particle Image Velocimetry and Laser Doppler Anemometry to measure flow speeds and a six Degrees of Freedom motion detection system for floating structures.

As well as the new hydrodynamic test facility, the Marine Science Building will also house an extensive Ship Simulator, allowing the interaction of 12 independent vessels in a virtual environment and a dedicated Electronic Chart Display and Information System (ECDIS) laboratory.



Oceanic basin	Coastal basin	Sediment wave flume
Dimensions: 35 m x 15.5 m x 3 m	Dimensions: 15.5 m x 10 m x 0.5 m	Dimensions: 35 m x 0.6 m x 0.8 m
24 wave-maker flaps of 2.0 m hinge depth and re-circulating current.	20 moveable modular piston wave-makers and a re-circulating current.	Can be turned on or off depending on need.
Will produce regular waves up to 0.9 m height and current recirculation of 0.2 m/s in 2.0 m water depth as well as a wind generation facility.	Includes option to incorporate sediment dynamics analysis	

“ When you combine our marine building with FaB Test’s nearshore facilities, Wave Hub’s offshore grid-connected site, the marine supply chain and the region’s academic expertise, you have the knowledge and assets to take a marine energy project from prototype model to full scale testing of arrays, all in South West England. That’s what the marine energy park concept is all about. ”

Professor Julian Beer, pro vice-chancellor at Plymouth University

Falmouth Bay test site (FaB Test)

The **Falmouth Bay test site (FaB Test)** is a one quarter scale, fully consented, wave energy test site developed in response to industry requests for an area to test scale models of wave energy devices in real and dynamic environments. It allows for up to three devices to be deployed concurrently and while not grid connected it does provide an extremely accessible and cost effective nursery facility as a stepping stone from proof of concept to full scale deployment at Wave Hub.

FaB Test has already generated significant interest from the industry and at least two device developers are planning to deploy there in the coming months including Fred Olsen's Bolt 2 wave energy convertor. It has been developed as a collaborative project between the A&P Group, Falmouth Harbour Commissioners, Wave Hub, The University of Exeter, Cornwall Marine Network & Mojo Maritime and is an excellent example of public and private sector organisations working together to deliver within the **South West MEP**.

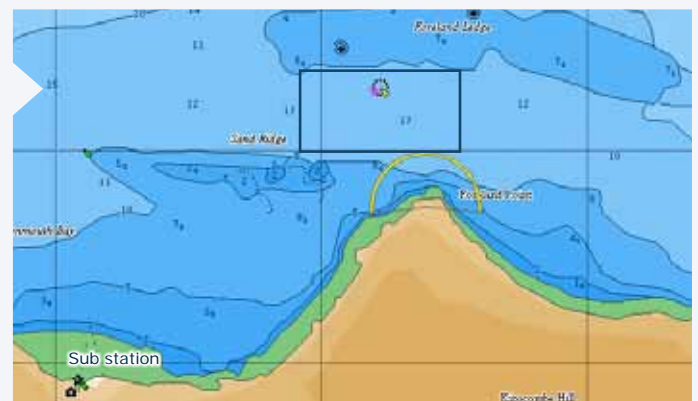
“ We have been looking forward to the FaB Test facility being established in Falmouth Bay. We know it is what our customers want if they are to develop their devices before going on to more ambitious deployments. The potential to support the deployment and servicing of these devices, and in the future their construction, is a key part of our strategy to grow our business in Cornwall. The site will play a significant role in helping us to realise this growth. ”

Mike Reynolds, port operations director, A&P Group



Lynmouth tidal test site

Leading tidal developer Marine Current Turbines successfully tested their first 300 kW Seaflow device off the North Devon coast at the **Lynmouth Tidal Demonstration Site** from 2003 to 2007. The site at Foreland Point is in 18-20 meter water depth with a peak flow of 2.5 m/s (5 knots). This makes it an ideal site to test prototype devices, materials and components and technologies designed to exploit shallower and moderate tidal flows. There is a potential grid connection at the Lynton substation which would require a cable run of approximately 3.5 km.



Wave Hub

Wave Hub is the largest and most technologically advanced, fully consented, grid-connected site for the testing and development of marine energy devices. This £42 million facility provides shared offshore infrastructure for the demonstration and proving of arrays of wave energy generation devices over a sustained period of time.

Located 16 km off the north Cornish coast in one of Europe's best wave climates, Wave Hub provides an electrical hub on the seabed to which arrays of wave energy devices can be connected. Based in Hayle, the Wave Hub team have been working with the universities of Plymouth and Exeter since 2005 to collect information on the site's wave energy resources and to create a baseline for environmental monitoring and impact assessment.

Wave Hub has:

- a fully consented 25-year lease
- an 8 km² test area made up of four berths, each measuring 1 km by 2 km and each capable of accommodating 4-5 MW of wave energy converters (giving a total of 20 MW)
- the potential to upgrade to 50 MW of generating capacity in the future once suitable components for operating the cable at 33 kV have been developed

On shore, Wave Hub is linked to the UK's electricity grid via a purpose built substation next to the new Hayle Marine Renewables Business Park with control and monitoring performed remotely from the substation using data transmitted via fibre optic cables within the main subsea cable.



The Wave Hub site is connected to the shore via a 25 km armoured subsea cable which consists of twin 300 mm², 33 kV power triads and fibre optic cables which terminate into two isolated busbars within the the hub chamber on the seabed. Each developer will connect to hub chamber via an umbilical that will run from the lead device of each array to an 11 kV dry-mate connector on one of the Wave Hub tails.

“ As part of the transition to a green economy the Government is committed to developing clean energy sources including marine. Development of the Wave Hub in Cornwall will bring both environmental and economic benefits to the UK. ”

Mark Prisk MP, Business Minister



Component and materials development

In addition to the device testing elements of the technology pathway, there are other facilities in the South West that support component, materials and technology at different stages of their development.



The **South Western Mooring Test Facility (SWMTF)** in Falmouth Bay is a unique mooring load and response test facility which has been constructed, launched and operated by the University of Exeter, renewable energy group. This facility investigates mooring/umbilical behaviour and develops suitable subsea monitoring systems. It collects the response and load data necessary for the testing of marine renewable energy devices. The information it collects is correlated with appropriate environmental data and gives a better understanding of the behaviour of the device which improves its calibration values and reduces uncertainty in its engineering design.



Also located in Falmouth is the custom built **Dynamic Marine Component Test Facility (DMaC)**. This one-of-a-kind rig builds upon data gathered from the SWMTF buoy to replicate the motions and forces that are applied to the component parts of marine renewable energy devices.

The rig comprises of a linear hydraulic cylinder that can be used to replicate axial tension/compression force, and a headstock with three degrees of freedom representative of x- and y-bending and torsion. This accelerated testing assesses the expected lifetime of component and identifies design weaknesses, potential failure mechanisms and refines designs to be more efficient. From this the design performance, expected lifetime and support/cost optimisation of marine renewable energy devices can be evaluated.



The **National Composites Centre (NCC)** based in Bristol is the UK's centre of excellence in composites and advanced materials applied research. Backed by leading industrial partners including: Airbus UK, Rolls-Royce, Vestas, MBDA, Augusta Westland, Umeco and GKN, the 8,500 m² NCC opened in the summer of 2011 at the Bristol and Bath Science Park. This facility provides an independent open access facility that supports design innovation leading to rapid manufacturing and commercial exploitation of advanced materials for the aerospace, automotive, marine and renewable energy sectors.

“ The West Country has a fabulous array of small firms designing and producing composite technology. The National Composites Centre will give them access to the very latest machines and research, and put them on a world stage. ”

Peter Chivers, director, NCC

Research capabilities

With six prestigious universities and a combined student population of almost 120 thousand, the South West has a vibrant and innovative academic community from which businesses can find skilled talent and research partners.

The Universities of Plymouth, Exeter, Bristol and Bath have very strong capabilities in the areas of engineering and marine sciences and have been involved with the development of marine energy technology going back as far as the 1970s. Today they offer the marine energy industry a very wide range of expertise, resources and capabilities to support the development of new technology, components, materials and skills needed to enable technology to operate in the marine environment. All the universities have developed a strong partnership with industry and offer a variety of ways in which to collaborate including Knowledge Transfer Partnerships (KTP's), applied research projects, business incubation and university placements.

The South West also has a number of private sector research facilities including the world renowned Plymouth Marine Laboratories, Marine Biological Association and the recently opened National Composite Centre.

The **Peninsula Research Institute for Marine Renewable Energy (PRIMaRE)** is a major research collaboration between the University of Exeter and Plymouth University. The PRIMaRE programme has provided funding for over 60 research academics, as well as investment in demonstration and test facilities such as the new Marine Sciences Building, DMaC and SWMTF and a programme of business support initiatives.

The core focus of the programme involves collaboration with industry in the delivery of applied research projects to address some of the most challenging issues facing the marine energy sector. Key areas of research have included:

- resource characterisation
- marine renewable energy systems
- environmental and biodiversity impacts
- safe operations and navigational risk
- underwater and surface electrical systems
- socioeconomic factors

The PRIMaRE programme has also enabled an extensive environmental survey and resource assessment project to be conducted at Wave Hub. This has provided baseline data which can be used to determine the environmental impact and performance of marine energy technology.



Plymouth Marine Laboratory (PML) is an internationally renowned independent provider of high quality marine research with centres of expertise in marine systems modelling, marine ecology and satellite remote sensing.

PML has been helping to develop new anti-fouling coatings for marine energy devices. Bio-fouling can reduce marine turbine efficiency by anything up to 40 per cent as a result of extra loads or blockages caused by encrusting marine organisms. PML is working in collaboration with Rolls Royce plc on developing anti-fouling technologies which improve asset management schedules that enhance performance and drive down costs.



The Exeter University Renewable Energy group uses a range of specialist equipment including four **Fugro SeaWatch** Mini II directional wave buoys, two standard RDI Acoustic Doppler Current Profilers (ADCPs) and two 5-beam units designed to provide measurements in deeper water.

University of Exeter

Part of the College of Engineering, Mathematics and Physical sciences the university's Renewable Energy Group was formed in 2005 and has now expanded to some 30 academics, post doctoral researchers, post graduate students and support staff. This group has capabilities in engineering and marine sciences and works corroboratively in Energy Policy, ecology and with environmental scientists. The group has world leading infrastructure for marine renewable research including a state of the art power laboratory with numerical and real time simulation capabilities. This laboratory has facilities for the study of most kinds of renewable energy technology and is equipped with state-of-the-art software for the analysis of engineering materials, computer aided design, wind energy resource assessment and turbine blade design.

The Offshore team in the Renewable Energy group has three main capabilities: Resource Assessment, Marine Operations & Hydrodynamics and Offshore Reliability, all of which are supported by the universities research catamaran, remotely operated vehicle and by a dedicated marine operations team, which has undertaken more than seven successful research deployments in the last three years.

Resource assessment

In marine resource assessment their research encompasses both physical measurements of the wave and current climates and numerical modelling to predict sea states across the South West and further afield. It has conducted research into wave measurement technologies and the development of high resolution wave models, including a regional wave model of the South West and more detailed wave models for sites on the south and north coast of Cornwall.

Marine Operations and Hydrodynamics

In marine operations and hydrodynamics the group conducts research in marine renewable energy station keeping and dynamic mooring simulations, development of offshore test sites and field measurement techniques, best practices for deployment procedures and power cable dynamics. This research is vital in cost reduction for deployment of marine energy devices and Exeter is helping define the industry standards in these fields.

Offshore Reliability

The group researches marine renewable energy component reliability to enhance acceptable levels of reliability & maintenance cost and focuses on methods to assess, model, demonstrate and improve the reliability of components and systems.

Plymouth University

The university's **Marine Institute** brings together scientists, business professionals, leading edge analytical facilities and collaborative research opportunities from the university's Faculty of Science and Technology and the Plymouth Business School. Supported by over 400 project scientists, specialists and other university staff, this institute has the broadest portfolio of marine expertise in Europe and is a founding member of PRIMaRE.

For marine renewable energy the Institute conducts research into:

- coastal engineering
- physical oceanography
- resource characterisation
- sustainable coastal and marine management
- environmental and biodiversity impacts
- safe operations & navigational risks
- socioeconomic factors

The Marine Institute has expertise in supporting emerging and existing technologies through its experience in a broad range of marine renewable energy activities as well as conducting engagements with local, regional, national and international stakeholder groups.



Plymouth University operates a dedicated oceanographic research vessel, Falcon Spirit. This 13 m vessel has capacity for 14 crew members, can work up to 60 miles from port and has experience conducting research at the Wave hub site.

Plymouth has significant underwater exploration capacity through its state-of-the-art Remotely Operated Vehicles which can explore, film in HD and conduct operations at depths in excess of 500 m, it also operates its own dedicated diving and marine centre (DMC) in Plymouth sound.

University of Bristol

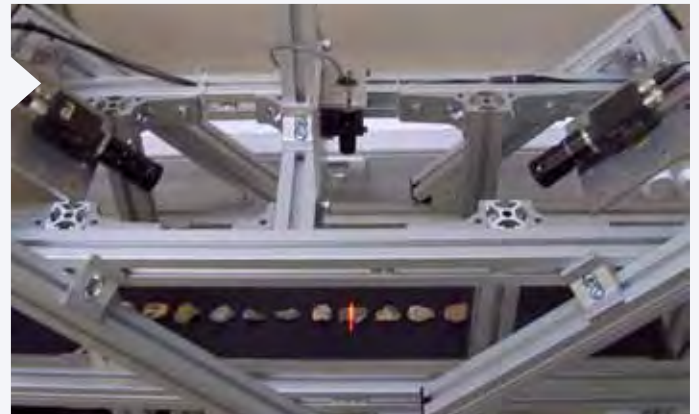
Working closely with the private sector, the **University of Bristol** is a leading research organisation and is currently working on a number of projects including research to develop advanced composite designs for tidal turbine blades, inter-array modelling, foundation design, engineering performance and energy extraction.

The **Advanced Composites Centre for Innovation and Science (ACCIS)** based at the Faculty of Engineering at the University of Bristol is a leading edge centre of composites research which promotes strong links with industry for exploitation and technology transfer. ACCIS has collaborated with a number of industry partners including Vestas wind systems as part of the international Vestas innovation network whose research has a focus on blade manufacturing and the use of smart materials and lightweight structures. It has also collaborated with leading tidal energy companies in developing improved materials and design techniques for tidal turbine blades.



University of Bath

The **University of Bath's** department of Mechanical Engineering, which is consistently ranked as one of the top 10 mechanical engineering departments in the country, has affiliated to it the Centre for Power Transmission and Motion Control (PTMC) who work with industry in areas such as magnetic bearing systems, fluid systems and fluid borne noise. Bath's Department of Electronic and Electrical Engineering includes the 'Centre for Sustainable Power Distribution' which looks at all aspects of Renewable power generation, transmission and distribution and is at the forefront of research into smart grids and network charging methodologies.



Marine Biological Association

The **Marine Biological Association** is an internationally renowned learned society, which conducts world-class research and publishes an academic journal; the journal of the marine biological association of the United Kingdom. Founded in 1884 and based in Citadel Hill Laboratory in Plymouth some thirteen Nobel prizewinners and 170 fellows of the Royal society have undertaken research at this centre. The MBA funds itself through a membership network and has one the most complete marine biological and oceanographic libraries in the UK.

Sir Alistair Hardy foundation for Ocean Science

The **Sir Alistair Hardy foundation for Ocean Science** based in Plymouth is one of the oldest oceanographic research centres in the world. Its extensive experience in conducting a continuous marine biological survey since 1931 inputs directly into understanding the marine ecological dimensions of marine renewable energy technology.

Skills for marine energy

The South West also has a range of further education institutions looking to train and up-skill the next generation of engineers and technicians for the renewable energy industry.

PETROC College, formerly the colleges of North and East Devon, work with over 18,000 students a year and run a range of vocational engineering and renewable energy installation courses in Photovoltaic and Bioheat installations.

www.petroc.ac.uk

At **South Devon College** the Energy Centre, a dynamic partnership being facilitated by South Devon College is bringing together key partners in a visionary project to kick-start the green economy in Torbay. The project has been allocated £1.2 million of funding from the first round of bidding to the government's Regional Growth Fund and will form a hub to meet the growing demand for high quality accredited training in renewable energy and sustainable building. Combined with raising awareness amongst business and domestic consumers the Energy Centre will drive demand and ensure manufacturers, suppliers and installers have the skilled workforce needed, directly leading to the creation of 407 private sector jobs.

www.southdevon.ac.uk

City College Plymouth runs courses in electrical engineering for renewable energy which have proved very popular among school leavers. The college also has a marine skills centre which provides a range of courses to provide workers with the skills needed to compete in the global marine industry.

www.cityplym.ac.uk

Cornwall College which has campuses all over the county works in collaboration with Plymouth University run a popular FDSC in renewable energy technologies at their Camborne campus.

www.cornwall.ac.uk

Located in the heart of Falmouth the **Falmouth Marine School** provides a comprehensive selection of marine based courses and apprenticeships including entry level to degrees in Boatbuilding, Marine Engineering and Marine Sciences many of which are not available anywhere else in the country. The school also manages the **Marine Innovation Service**, established to provide knowledge transfer and consultancy to companies working in the marine sector. This service aims to help existing firms as well as new start-ups to increase their expertise in the use of composites and ultimately for Cornwall to become recognised as a centre for marine composites technology.

www.cornwall.ac.uk/falmouth/Home

“ As an international employer, Babcock require young motivated people with a passion for engineering and as an industrial sector we can offer huge opportunities for the right candidates. By working in partnership with Petroc and other manufacturers I believe we can make a genuine difference to the job opportunities available to young people throughout the region. ”

Andy Hamilton, director of shipbuilding, Babcock Marine (Appledore)



Port infrastructure

The South West has a wide variety of port infrastructure available to support the technology development, manufacture, installation and ongoing operations and maintenance for marine energy projects. A key advantage for the South West is the close proximity between the ports, areas of high energy resource and centres of research and industry. This creates a highly efficient and low cost environment from which to commercialise new technology.

South West ports have historically acted as magnets for investment and business development. The larger ports of Falmouth, Plymouth and Bristol are now industrial centres, supporting business clusters specialising in marine engineering, marine operations and advanced manufacturing. They also host the key university research facilities. It is natural, therefore, that these ports form the focal points for the **South West MEP**.

The smaller ports, particularly those on the north coast such as Hayle and the cluster of North Devon ports, are ideally located to provide operations and maintenance support. For both the development of technology and for commercial projects, proximity to areas of deployment is an important consideration.

It is anticipated that the growth of the marine energy sector will lead to the renaissance of the South West's marine and engineering industries. The **South West MEP** will support proposals from port operators and industry to develop the region's port, engineering and manufacturing infrastructure. Cornwall Council proposes to secure an additional £7 million of European development funding to be targeted at infrastructure projects for the marine energy sector, on top of the £20 million redevelopment of the Port of Hayle. This includes new access infrastructure and a dedicated marine energy business park, and is a prime example of the investment that will be needed to support the industry.

The following pages of this prospectus provide a brief outline of the key ports in the region, highlighting their unique and complimentary capabilities to support the marine energy sector.



Falmouth

A&P Falmouth: Paul Weston

Falmouth Harbour commissioners: Captain Mark Sansom +44 (0) 1326 310 995

At the mouth of the Fal estuary is the **Port of Falmouth** which is the largest port in Cornwall and the deepest natural harbour in Western Europe. Falmouth harbour is operated by **Falmouth Harbour Commissioners** and Falmouth docks by **A&P Falmouth**, part of the A&P Group and one of the largest private sector employers in Cornwall. This deep water harbour has excellent flexible facilities and an extensive dock complex incorporating three graving docks suitable for vessels up to 100,000 dwt and four wet berths. It also has over 700 m of wharf space, crange, a heavy load out quay and is the largest ship repair facility in the UK. A&P employ over 300 skilled tradesmen and have access to a considerable pool of skills from agency and subcontract companies. Falmouth is a busy working port handling annually over 100,000 tonnes of dry cargo, 400,000 tonnes of bunker fuel and with over 20 supply chain companies located in the docks.

Over the last few decades Falmouth has developed close relationships with key equipment and service providers in the marine sector and has become a hub for marine supply chain businesses. In fact, Falmouth has proved to be a real powerhouse of expertise for the marine energy industry, with several specialised businesses offering key services and having impressive track records in the development, deployment and maintenance of offshore devices. A&P Falmouth have turned their capabilities for marine fabrication and repair to marine renewable energy working with device developers **IT Power**, **Ocean Power Technologies** and **Fred Olsen** on the fabrication of wave energy converters.

Future developments

Launched in 2008 the Falmouth Harbour masterplan will be a £106 million project to redevelop th port for commercial and industrial uses including the development of a new renewable quay and mobilisation area. It will include modernising ship repair facilities, upgrading wharves at the Docks, improving bunkering services and providing new super yacht workshops and offices.

Key facts

Main functions:	Commercial shipping Ship repair
Management:	Falmouth harbour commissioners and A&P Falmouth
Storage:	8370 m ² warehouse 3 ha uncovered space at A&P Falmouth
Fabrication Workshops	General engineering Electrical Foundry

As well as an excellent port Falmouth has also become a major centre for marine operations and sub-sea specialists. Companies such as **Fugro Seacore**, who recently deployed the Aquamarine Oyster 2 device at Orkney, operate a fleet of jackup barges, specialist drilling equipment and fabrication & maintenance workshops from their Falmouth base.

Other companies in Falmouth include marine energy specialists **Mojo Maritime**, **Falmouth Divers**, **Armada Hydraulics**, and **Large Diameter Drilling**.



Plymouth

Stephen James +44 (0) 1752 305452 stephen.james@plymouth.gov.uk

The city of Plymouth has a long history of supporting marine and naval operations and is a major centre for shipbuilding, marine engineering and marine sciences. Collectively, the four sites in Plymouth (Devonport, Millbay, Cattewater and Sutton Harbour) represent one of the South West's and UK's largest and most diverse ports.

The **Devonport Naval base and dockyard** is the largest naval base in Western Europe, directly employing over 5,000 within the naval base and dockyard. It has 14 dry docks and 25 tidal berths over a 263 ha site. The dockyard conducts a range of activities for the support and maintenance of the British surface and nuclear-powered submarine fleets and is home port of the Royal Navy Devonport flotilla. The largest private sector employer with Devonport is **Babcock Marine** whose activities include marine engineering, ship building and repair as well as specialist nuclear and composites capabilities.

As part of project Roundel, the MoD has been engaged with the City Council to examine the development opportunities of 10 potentially-surplus military sites in and around Devonport Naval Base. The largest of the sites is the 32 ha South Yard of the Naval Base, and 6 ha of this site has now been acquired by Princess Yachts for the development of a new £30 million production facility for luxury motor yachts that will create or support 1,000 highly-skilled jobs. The MOD will retain part of South Yard, and one major warship berth, for continuing naval use for the foreseeable future, but there is nevertheless some 16 ha including listed docks and buildings that could potentially be released by the Naval Base for use by marine/marine energy industries.

Plymouth also has the 18.6 ha ferry terminal and freight port at **Millbay**. This was used by crews and logistical support teams of the 2011 Americas cup and has 1.4 ha of land available for potential marine and marine energy uses. It can accommodate virtually any 'roll on roll off' vessel with a capacity of up to 180 tonnes and handles around 170,000 tonnes of freight per annum. Plymouth's **Cattewater**, located at the eastern end of the City's waterfront, can handle vessels up to 150 m in length and is home to two leading marine civil engineering firms who use it for mobilisation and operations activities.

Key facts

Main functions:	Marine engineering Service Construction
Main Sites:	Devonport Dockyard Millbay Dock
Total space involved:	263 ha (Devonport) 18.6 ha (Millbay)

Plymouth has one of the UK's largest and most diverse ports, with an estimated 300 marine related businesses (employing over 13,000 people) in the city engaged in engineering, ship building, maintenance and related trades such as electronics, hydraulics and composites. The cluster of marine business alongside the marine science capability makes Plymouth an ideal location to support fabrication and manufacturing of marine energy devices and components.



Devonport South Yard
- potential for industry expansion

Bristol

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Bristol and the area covered by the West of England Local Enterprise Partnership is already established as a centre for marine renewable energy technology development and is home to leading technology developers such as MCT and TGL plus a number of leading technical consultancies, finance and legal firms. The Bristol region is also recognised as a UK centre for aerospace and advanced manufacturing including a specialism in composite based applications. In addition to the fantastic business environment and quick access to the City of London and the UK motorway network, Bristol boasts substantial port infrastructure and supply chain capability.

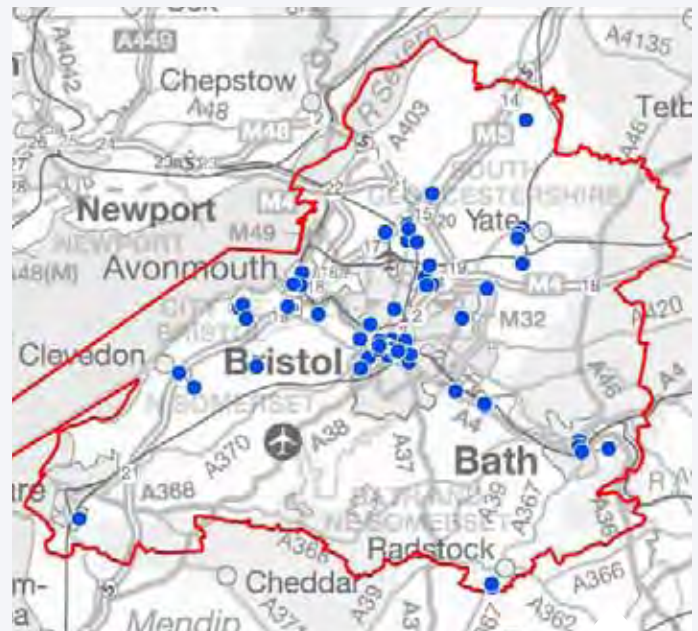
The Bristol Port Company operates one of the UK’s most technically advanced and fastest growing commercial ports in the UK. These deep water berths at Avonmouth and Royal Portbury have a 1,052 ha combined estate and the ports have extensive land space which could be utilised both as a logistics hub and a potential assembly and construction port for offshore wind and marine renewable energy projects. At over 40 m, the Royal Portbury Dock lock gates are big enough to take the majority of the new generation of wind farm installation vessels.

Future developments

The next major phase in Bristol Port development is a £600 million investment into the building of a new deep-water container terminal which will have capacity to service the new generation of ultra Large Container

Adjacent to the port is the Avonmouth and Severnside industrial area which has over 800 acres of land available for development which, supported by a RGF Revolving Infrastructure Fund, could be utilised for the marine and offshore energy sectors.

Key facts	
Main functions:	Commercial shipping Wind Farm Construction O&M
Management:	Bristol Port Company
Site size:	1,052 ha estate plus an additional 324 ha at the Avonmouth and Severnside site adjacent
Maximum vessel capacity:	16 m draft 40 m beam



Bristol and the surrounding region is a centre for marine energy technology development and support services. It also has a high concentration of companies in the aerospace, advanced manufacturing and composite industries. Analysis by Regen SW suggests that over 80 of these companies are already engaged in the offshore energy sector.

Hayle

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Hayle harbour, on the North coast of Cornwall, has a long industrial history going back to the early days of the Cornish industrial revolution. Although access is constrained through a tidal channel, the harbour can accommodate vessels with draft of 2.5 m and has in the recent past supported large vessels including flat bottom barges. Hayle is also the site of a 33 kv/132 kv substation linking to the main national grid at Indian Queens and is the landing point for the Wave Hub offshore cables.

The biggest advantage for marine energy projects operating out of Hayle is the close proximity to marine energy resources. Hayle is approximately 20 km from the Wave Hub demonstration site. The combination of Falmouth and Hayle therefore provides an ideal solution with Falmouth providing deep water and heavy lift facilities to support installation and significant maintenance activities, while Hayle provides easy access to support on-going O&M, equipment and crew transfer and is the home of the Wave Hub operations.

Future developments

The entire harbour area is undergoing a major redevelopment, including a £20 million investment in new port infrastructure including a new bridge, an access road, flood protection works and renovated quayside. The redevelopment includes a new dedicated 0.8 ha **Marine Renewable Business Park (MRBP)** located next to the main industrial quay. The MRBP will provide workspace for device developers using Wave Hub, supply chain companies and other marine renewables related businesses.



Key facts

Main functions:	Supply and support of Wave Hub Shellfish Fishing harbour
Management:	Hayle Harbour Management Ltd (Part of ING real estate)
Facilities:	Easy reach of the Wave Hub site Tidal harbour with facilities for vessels of 12 m beam, 4 m draft and 60 m length

Truro

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The **Port of Truro** lies at the head of the Fal estuary in Cornwall. It has good storage facilities, both covered and uncovered, with a 350 m quay providing a cost effective supply route to Falmouth docks and offshore. Truro's transport options including mainline rail, the main arterial road link through Cornwall, and air connections via the nearby Newquay Airport. The Port of Truro provides a well connected hub for supply chain activities in the marine sector, and is attracting significant investment to further improve its facilities.

Key facts

Main functions:	Commercial shipping Storage facilities
Anchorage:	190 m max. length for layup
Storage capacity:	Covered: 560 m ² Uncovered: 650 m ²
Quay space:	350 m for vessels of less than 85 m length and 4.1 m draft



Portland Port

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Having the second largest man made harbour in the world, and over a hundred years history as a naval dockyard, the **Port of Portland** is the UK's newest commercial port. The port continues to provide support for the Royal Fleet Auxillary vessels but now also operates a diverse portfolio of operations specialising in handling project and bulk cargo.

The flexibility in the port's operations plus the proximity to the 900 MW Navitas Offshore Wind Farm, and areas of tidal stream resource, make the port an ideal base to support project mobilisation and O&M activities. A key feature of the port is the extensive sheltered harbour which could be used for floating storage and ship transfers. Significantly the port has a Harbour Revision Order in place to support a massive port expansion programme which would provide an additional 13 ha of land space and 700 m of new quayside

Key facts

Main functions:	Commercial shipping Wind Farm construction Wind Farm O&M Underwater services
Management:	Wholly owned by Langham Industries
Depth below LAT:	Currently 9.5 m Development from 7.6 m to 11.2 m
Vessel Capacity:	Currently up to 250 m length, 50 m beam Development up to 320 m long, 50 m beam



Fowey

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Fowey Harbour is situated on the south coast of Cornwall, approximately halfway between Plymouth and Falmouth. It is a deep-water port accessible in all weather and states of the tide. Fowey Harbour Commissioners own and operate a small ship repair yard and slipway, which can accept small vessels up to 150 m in length. Fowey Docks is predominantly setup to load large vessels with bulk dry commodities.

Key facts

Main functions:	Commercial shipping Some lay-up facilities Cargo Handling inc. dry bulk
Management:	Fowey Harbour Commissioners
Maximum vessel length:	Up to 150 m
Maximum vessel draft:	Up to 8.5 m at LWOST

North Devon Ports

Iffracombe, Appledore, Bideford, Yelland

The North Devon coast has a number of ports which are perfectly placed to act as operation & maintenance bases for marine energy deployment in the Bristol Channel, as well as the new 1500 MW Atlantic Array offshore wind farm.

The marine division of Babcock International have a major shipyard on the river Torridge at **Appledore**, which employs over 400 people including design engineers, fabricators and specialist trades. The yard has been commissioned with the construction of bow sections for new Royal Navy aircraft carriers and the construction of two new patrol vessels for the Irish Naval Service. Appledore has over 2 ha of laydown space with warehousing & fabrication facilities, and is ideally suited for marine renewables fabrication, operations and maintenance.

At **Bideford** on the Torridge estuary the small working port and docks are owned and managed by the Bideford harbour board. The 300 m of modern quay frontage is available twice a day on the tide for vessels of around 2 m draught, and up to 5 m draught on spring tides. Bideford regularly handles ships of 90 m length with draughts of 4.5 m, and the port has its own Priestman crawler crane and a new state of the art Fuchs grab re-handler.

The port of **Iffracombe** on the North Devon coast is the closest working port to the Atlantic Array and has been earmarked as a potential base to support operations and maintenance activities at the wind farm.

Future developments

Yelland on the river Taw is well located to act as an operation and maintenance base for marine renewable energy deployment all along the northern coast of the peninsula. There are detailed plans in place for redevelopment at the site of the old Yelland power station, where there is over 14 ha of available brownfield land and a grid connection through it's existing substation.

There are further opportunities for all of these ports to expand and to tailor existing sites to service the O&M needs of the Atlantic Array and other marine energy developments. The **South West MEP** will continue to work with key stakeholders in these ports to ensure that the needs of project developers and communities can be met.



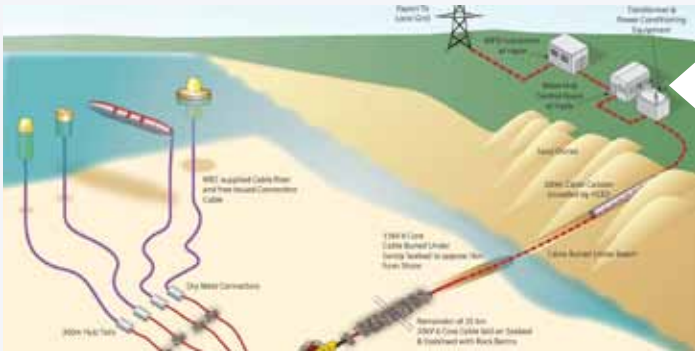
Electrical design engineers **J&S Marine** have over 50 years experience in marine engineering and 10 years experience in the offshore oil and gas industry. The low volume and highly bespoke nature of J&S's products are suited to the current nature of the marine energy sector and they've decided to enter this market as well. This was a successful decision with their experience and unique skills for designing and manufacturing offshore equipment seeing them work with the European Marine Energy Centre in Orkney as well as on other projects.

Grid connection

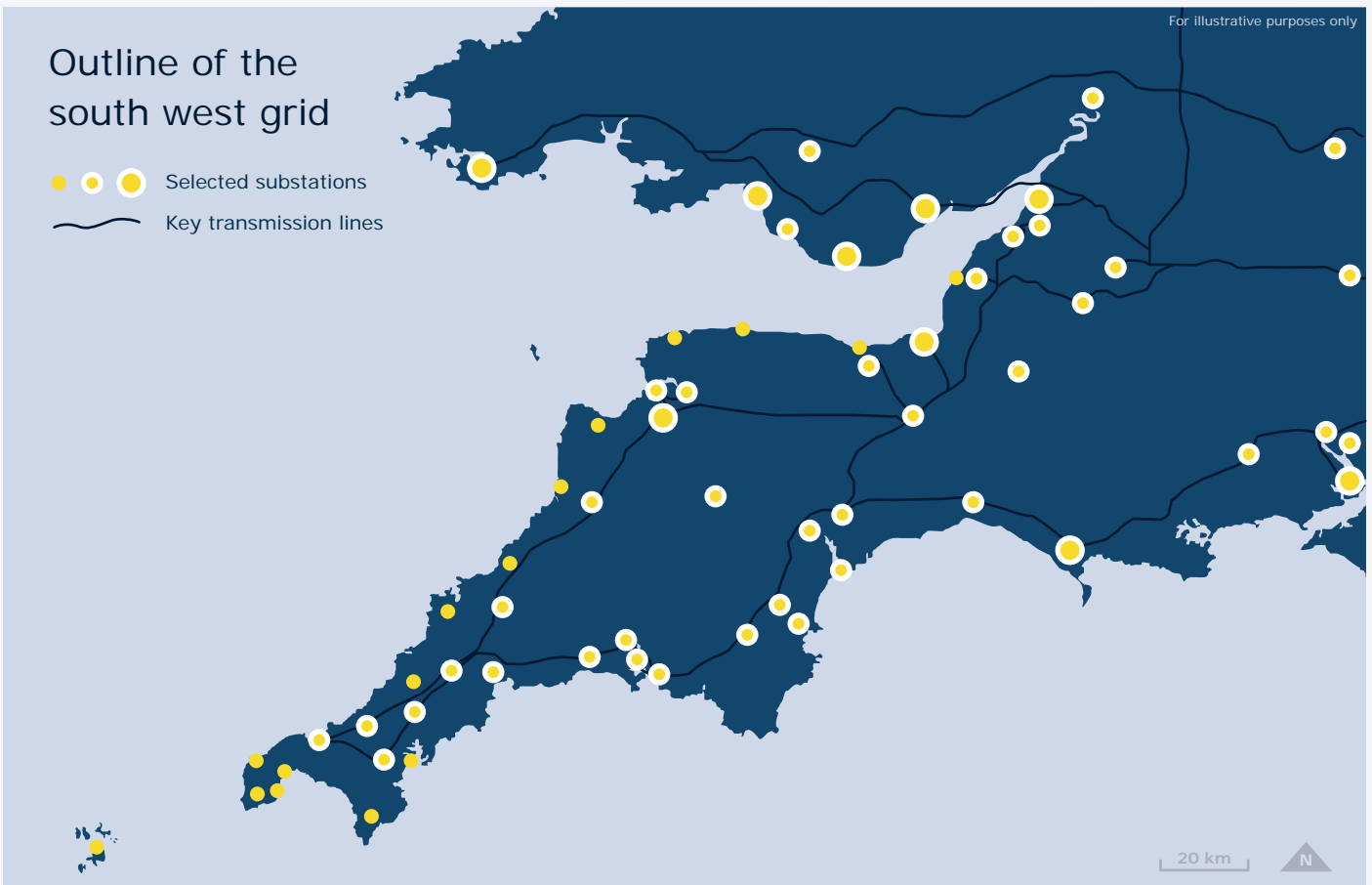
As a net importer of electricity, the South West is fortunate enough to have grid infrastructure with capacity to meet energy demand locally without increasing the overall grid transmission costs.

Grid access points along the coast include sub-stations at Hayle, Alverdiscott, Lynton and Hinkley. These, although they will require investment in the medium term, provide an opportunity for early commercial expansion. Looking further ahead, the development of marine energy, offshore/floating wind and nuclear energy also offers the opportunity for a coordinated grid investment and upgrade programme using shared “supergrid” infrastructure.

A key role for the **South West MEP** will be to understand the marine energy industries’ future requirements, and then to coordinate the development of both port and grid infrastructure across the region to ensure that it is fit for purpose to support long term growth. To better understand the regional grid in the context of marine energy, the **South West MEP** will work closely with the regional distributed network operators – Western Power Distribution – and the National Grid to create a comprehensive grid study as one of it’s first outputs.



As part of the Wave Hub test facility the Hayle substation has been upgraded for marine energy use. This comprises an 11 kV/33 kV transformer with associated switchgear and power factor correction equipment to ensure delivery to the grid within specification. This substation sits just outside the Hayle Marine Renewable Energy Business Park and will support the work of Wave Hub.



Supply chain capability

A strong and collaborative supply chain

The South West has a long and proud maritime history, and has been at the forefront of engineering since before the start of Britain's industrial revolution. It is fitting, therefore, that South West companies are today providing the skills and expertise needed to design new marine energy technology, and to deploy it in the harshest environments.

The involvement of South West companies in the supply chain goes beyond providing cost effective product and services; many are actively engaged in collaborative partnerships with technology developers and are willing to invest to provide innovative and cost effective solutions.

The South West has a very broad and varied business community with core strengths in areas directly related to marine energy such as marine operations, sub-sea engineering and surveys, fabrication, engineering design, naval architecture and marine sciences - as well as specialist technical and renewable energy consultancies. The region also has a wider range of industries, including: defence, aerospace, electronics, hydraulics and composites which could provide expertise and crossover capability for the marine energy sector.



It is impossible to mention all the companies involved in the marine energy sector here. Now in its 5th Edition, the Regen SW Marine Energy and Offshore Wind Company Directory contains over 350 companies and is available as a booklet and on-line.

www.regensw.co.uk/projects/offshore-renewables



Excellence in Marine Operations

Falmouth is the home port for a large number of marine and sub-sea companies including jack-up barge and drilling specialist **Fugro Seacore**, **Falmouth Divers** and the South West Green Energy Award Winners **Large Diameter Drilling**, whose new concept LD5000 drill is now being deployed on the Gwynt y Môr wind farm.

Mojo Maritime is another Falmouth based company that has seized the opportunity to expand its marine operations business to become a marine energy specialist. Having worked on the installation of many of the leading tidal and wave energy devices, Mojo's core business now encompasses marine energy consultancy as well as a specialist hydrodynamic analysis.

Mojo recently managed the installation and sub-sea operations for Bauer's award winning BSD 3000 "drilled-in" monopile solution for the installation of tidal devices. Also involved in the Bauer project, and another member of the **MOR Group**, **Insight Marine** provides specialist hydrographic surveys and positioning services.

Collaborative partnerships

South West companies are working together to provide integrated solutions for the industry. Based in Cornwall and Devon, and supported by the **Cornwall Marine Network**, the **MOR Group** is a membership based group of companies delivering industry expertise to provide world class customer services. It's members demonstrate a proven track record in leading-edge projects and bring specialist disciplines to create an integrated approach to deliver successful solutions.

Engineering

The South West offers a wide range of large and small engineering companies - many of whom are currently working in the marine, aerospace, composites, defence and advanced manufacturing sectors.

Plymouth is a centre of excellence for marine industries and marine sciences. There are over 300 marine related business engaged in engineering, shipbuilding, maintenance and related trades such as hydraulics, electronics and composites. Of these **Babcock Marine and Technology** is the largest, with a significant presence at both Devonport and in Appledore.

Bristol has become a centre for technology development especially for tidal energy. With over 700 companies employing 18,000 people, there is a concentration of aerospace and advanced engineering companies based in and around Bristol including multi-national companies such as **Rolls-Royce, Airbus, GKN - UK** and **BAE Systems**.

A key feature of the South West is the willingness of companies to diversify into the marine energy sector bringing specialist skills and capabilities. Two good examples of this are **Armada Hydraulics** and **Supacat**.

Armada Hydraulics is a marine hydraulic specialist now finding a new market for their skills and expertise in the marine energy sector.

Supacat is a design and engineering company with an excellent track record producing and supporting innovative solutions for the harshest environments such as the high-mobility, all terrain, Jackal and Coyote military vehicles. Supacat have now turned their innovative production engineering skills towards the marine energy sector by partnering with **Fred Olsen Ltd, Scotrenewables Ltd** and the **University of Exeter** on a TSB funded project to develop the *Fred Olsen - 'Bolt 2'* wave energy device.

Supacat have developed a submersible launch and recovery platform for the RNLI



Environmental and marine sciences

The South West has a large number of specialist firms providing services in the area of marine and environmental sciences including **Coastline Surveys, Marine Ecological Surveys** and **Ecospan Environmental**, as well as multi-national environmental consultancies such as **Environ, Royal Haskoning** and **Worley Parsons**.

Renewable Energy Specialists

Many of the larger multi-disciplinary consultancies such as **Parson Brinckerhoff, AECOM** and **Scott Wilson** have offices in the South West with a strong focus in the renewable energy sector

Founded in Bristol, and now part of the Germanisher Lloyd group, **GL-Garrad Hassan** is probably the largest and best know consultancy firm specialising in renewable energy projects in the world. Since 2005, engineers and consultants in their marine renewables group have worked alongside key wave and tidal device and project developers to help spearhead the development of prototypes and demonstration projects.

Also based in Bristol, **IT Power (ITP)** is an international renewable energy consultancy and project developer that has delivered more than 1,500 projects in 120 countries, and has been a close collaborative partner for many of the leading technology developers including **Marine Current Turbines, Pulse** and **OWEL**.

Other renewable energy specialists based in the South West and working in the marine energy sector include **BVG Associates, Wardell Armstrong, Pure Energy Professionals, Zero Carbon Marine** and **Marine Energy Matters**. These companies provide a range of services including resource assessment, project development, technology appraisal and design, and finance, as well as general business consultancy.

As the renewable energy sector has grown and become part of the mainstream economy many professional and legal services firms in the South West such as **Burges Salmon, Bond Pierce, Osborne Clarke, Stephen Scowans** and **E&Y**, have established teams of renewable energy experts who are able to provide specialist support for renewable energy projects from consenting and IPR through to financial closure.

Supply Chain Development

The **South West MEP** will continue to support the development of the South West supply chain and will work with organisations such as **Regen SW, MAS South West, EEF, Cornwall Marine Network** and other agencies that have been leading in this field.

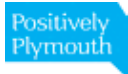
Supporting enterprise and innovation



Regen SW is a not-for-profit centre of sustainable energy expertise and pioneering project delivery. Regen SW has run a dedicated offshore renewable energy team for over eight years supporting project and technology developers and supply chain companies. It has been instrumental in the strategic development of marine renewables in the region, including the first concept for Wave Hub and the development of the South West MEP www.regensw.co.uk



Invest in Cornwall helps companies and investors in Cornwall, as well as those thinking of relocating to the county, to have information that is relevant, makes business introductions and advise s on the financial assistance that's available. Whether you're thinking of starting a new business, looking to relocate or seeking a UK base for your operations, Invest in Cornwall can help find out just what Cornwall has to offer and ensure businesses get all the support they need to do business in the county. www.investincornwall.com



Part of Destination Plymouth, Positively Plymouth gives businesses and communities within Plymouth a stake in the marketing and place management of the city to inward Investors and visitors to it. www.positivelyplymouth.co.uk/invest/



Invest in Bristol provide a 'red carpet' reception service for companies wishing to develop or locate in the cit-region with dedicated account managers on hand to broker sites and premises including 'soft landing' packages, provide access to the council's planning and development services and assist with all relocation, recruitment, training, networking, supply chain and knowledge-base needs. www.investinbristol.com



The Growth Acceleration and Investment Network (GAIN) is a collaboration between Plymouth University, the Tamar Science Park and Plymouth city Council which aims to make Plymouth one of the UK's top 20 cities for innovation. www.plymouth.gov.uk/gain



Established in 2002, the Cornwall Marine Network is dedicated to supporting the world-class marine sector in Cornwall via initiatives that improve profitability and encourage growth through quality and innovation. Six years on, the Network has over 350 members and remains firmly rooted in the sector supporting its members develop skills, capabilities and new business opportunities through inventive training and marketing initiatives. CMN is now working with marine energy companies in Cornwall and Devon supporting collaborative partnerships such as the Marine Offshore Renewables Group. www.cornwallmarine.net



The Manufacturing Advisory Service (MAS) is one of the Government's Solutions for Business suite of offerings funded by the Department for Business, Innovation and Skills (BIS). It has been designed to help manufacturers streamline their processes, reduce waste, become more energy efficient and generally improve their business. www.mas.bis.gov.uk



The manufacturer's organisation (EEF) is an organisation that is dedicated to the future of UK manufacturing, everything it does is designed to help manufacturing businesses evolve, innovate and compete in a fast-changing world. www.eef.org.uk



The Environmental Technologies iNet is a £2M initiative supporting environmental goods and services companies in the South West. As a 'one-stop-shop' for the sector, it helps businesses access specialist knowledge, develop products and services, improve competitiveness and engage with new routes to market www.inets-sw.co.uk/environmental

A good home for business



A joint venture between Plymouth City Council, Devon & Cornwall Training and Enterprise Council and the University of Plymouth the Tamar Science Park in Plymouth is home to over 60 companies employing over 750 people in knowledge based industries. www.tamarsciencepark.com



The Pool innovation centre in Cornwall is a centre for excellence in enterprise and innovation with a focus for promoting knowledge and innovation led enterprises and new business formation. It has 49 rentable units, offers business support to new start-ups and benefits from state-of-the art full fibre ICT infrastructure with super fast broadband data connectivity. www.poolinnovationcentre.co.uk



Used and managed by the University College Falmouth and the University of Exeter in Cornwall - the Tremough Campus is the hub of the Combined Universities in Cornwall project and is where the University of Exeter's Renewable Energy group is based. www.tremoughservices.com



The 24 ha Exeter Science Park (due to open 2013) at Redhayes and will provide services for knowledge intensive firms that encourage enterprise, knowledge transfer and science based business development. The predicted investment value for the project will be £250 million and it will create between 2,000-3,700 highly-skilled sciences. www.exetersciencepark.co.uk

South West MEP partnership



Plus many more



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This South West Marine Energy Park prospectus has been commissioned by Cornwall Council and Plymouth City Council, supported by Plymouth University, and is produced by Regen SW. Thanks to the many organisations that have contributed.



convergence
for economic
transformation



DISCOVER
WITH
PLYMOUTH
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