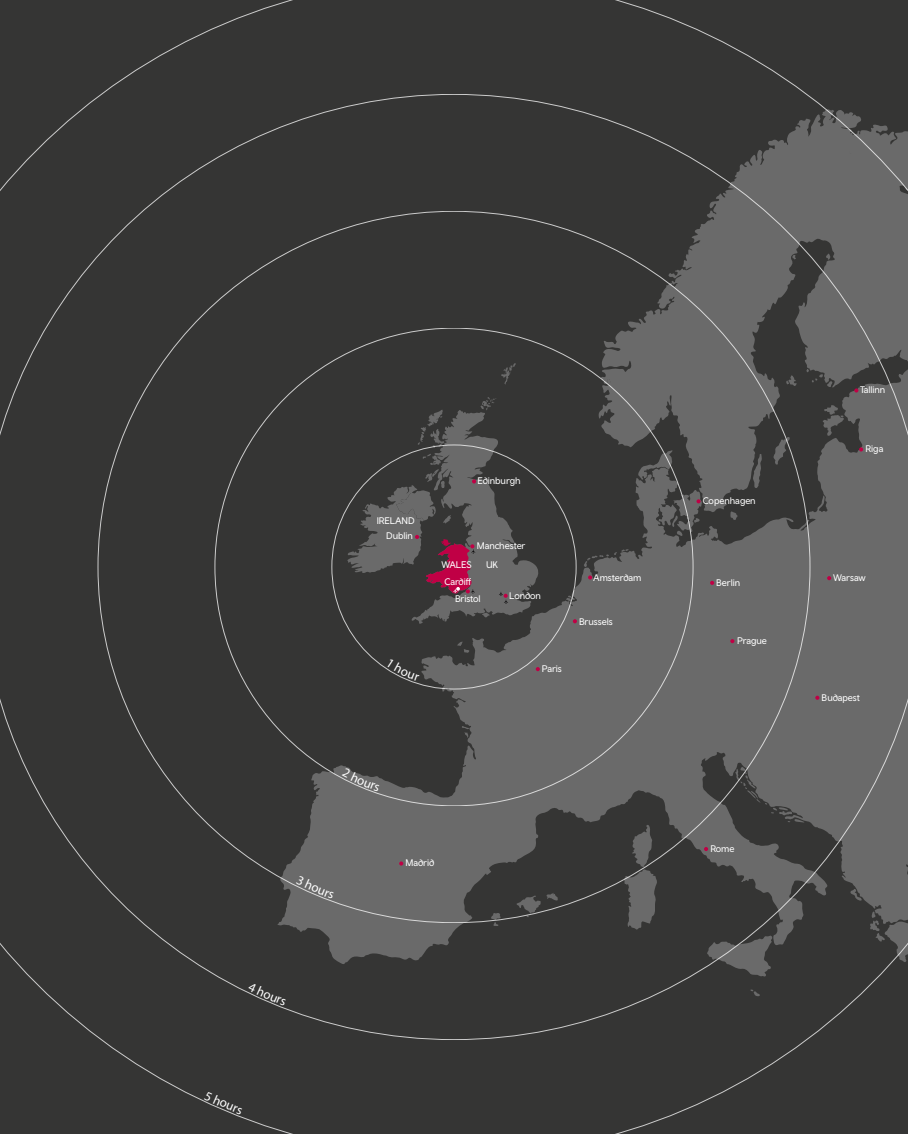
Cymru
Wales


Tallinn
Riga
Edinburgh
Copenhagen
IRELAND
Dublin
Manchester
WALES
UK
Cardiff
Bristol
London
Amsterdam
Berlin
Warsaw
Brussels
Prague
Paris
Budapest
1 hour
2 hours
Rome
Madrid
3 hours
4 hours
5 hours

We have a clear ambition in Wales, to create a sustainable, low carbon future.

THIS IS MARINE ENERGY

Wales is situated on the western edge of the United Kingdom, and has direct access to over 60 million people within the UK. Crucially, we have access to a supportive devolved government, which has the ability to make things happen quickly.

Wales has made huge strides over the past couple of years in building our marine energy infrastructure and nurturing our marine energy developers to ensure they move closer to large scale deployment of their technologies.

By building a positive momentum, we anticipate the marine energy sector to contribute to our renewable energy generation over the medium term.

Access to our major marine energy locations is swift which enables hassle free travel by our project partners to do business with our supply chain and academics. This also means that anyone connecting to the grid has easy access to consumers on their doorstep.

"It adds up to a compelling offering for business managers and owners", says Dr Martin Edlund, co-founder and CEO of Minesto, creators of the The Deep Green underwater power plant project off the coast of Anglesey.

Rapid innovation is taking place across the marine energy sector with a growing number of projects underway in Wales. Take a look at some of the work that's happening here...

CONCEPT TO DEPLOYMENT

There's a growing number of device developers based here in Wales, including Minesto, Marine Power Systems and Bombora Wavepower.

"The decision to establish our European headquarters in Pembroke Dock was underpinned by the Welsh Government's support for the marine energy sector.

This, combined with access to skilled people, great port facilities and an experienced supply chain make Pembrokeshire an ideal location for emerging companies like Bombora".

Richard Bereford
Chairman
Bombora Wavepower

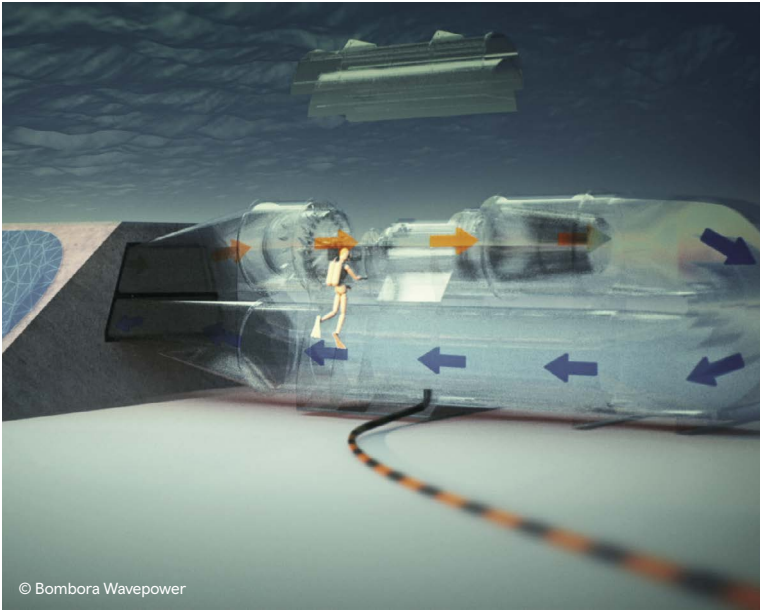
Wales is working in tandem with our developers to assist them from initial device concept to deployment. The ability to directly assist through the development stages to physical deployment has benefitted a growing number of companies.

Bombora Wave Power transferred its main operations to Wales at the end of 2017 after successfully completing a major capital raising round.

Bombora is currently mid way through completing a £20m validation project to design, build and test a 1.5 MW mWave device off the coast of Pembrokeshire in west Wales.

The project received £10.3m of European Regional Development Funding (ERDF) and the company are working in tandem with a number of local businesses, including Mainstay Marine Solutions, to bring the project to a successful conclusion.

Minesto's Deep Green project off the coast in Anglesey, north Wales has been awarded an additional £12m to develop a commercial-scale second-generation DG500 device in 2019. They resumed in-water testing of their kite system in August.


© Bombora Wavepower

MARINE POWER SYSTEMS

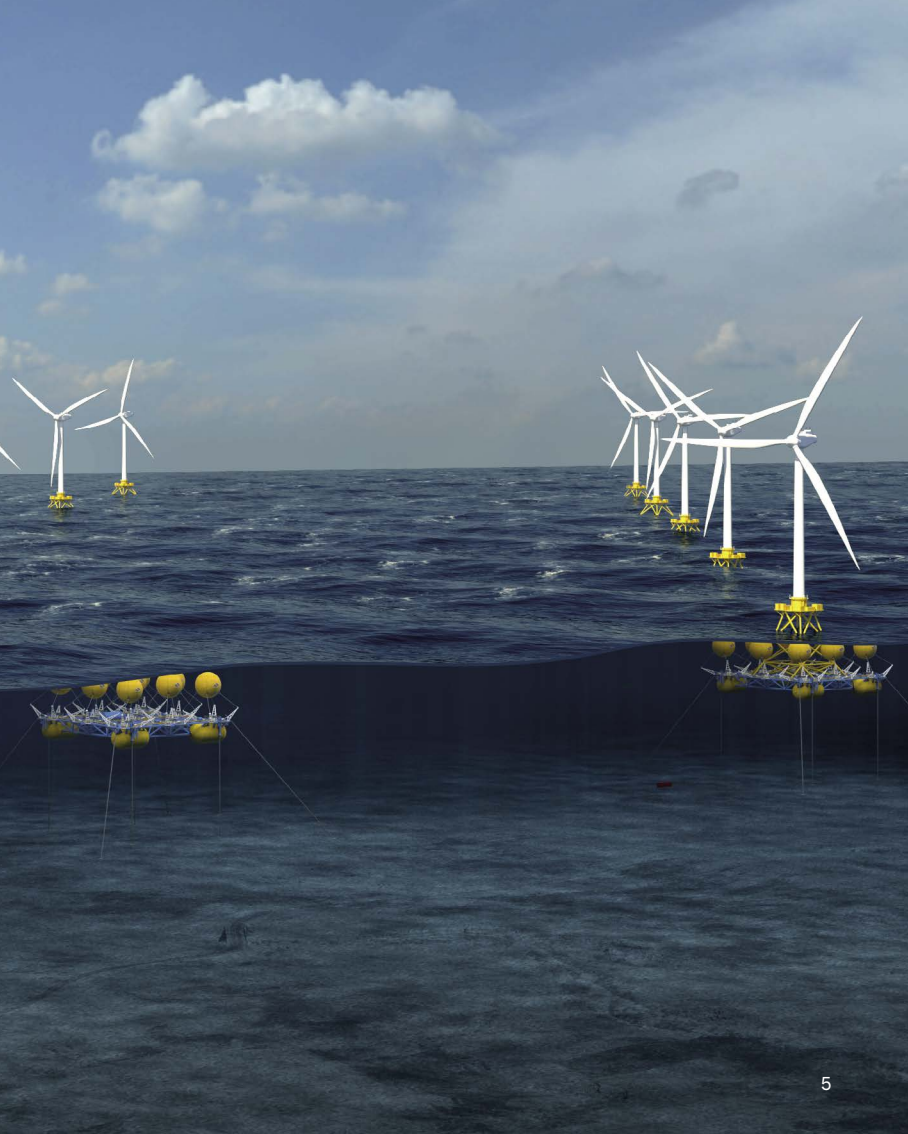
2019 has been a year of growth and reimagining for the Swansea based Marine Power Systems (MPS).

In April, MPS expanded their technology offering into the floating offshore wind sector, leveraging their existing marine energy expertise.

The two devices – WindSub and DualSub - will offer solutions to deep water locations, where wind speeds are high but water depths are such that fixed bottom foundations are not a commercially viable solution.

In August, the company announced the successful completion of their 12 month testing and sea trial programme for their 1:4 scale WaveSub.

This has unlocked an additional £7m of ERDF funding for the next stage of device development, which will include the design, manufacture and testing of a full-scale version of the WaveSub.



MARINE ENERGY TEST AREA

META will provide a stepping stone for marine energy developers.

META is now open for business and has received its Phase 1 test area approvals including a Band 2 Marine License, Crown Estate Small Works License plus its Marine Works License from the Milford Haven Port Authority.

This will allow META to undertake:

— Dip testing of sub-assemblies, components, monitoring and research equipment.

— Short duration dip testing of full scale devices.

— Testing of vessel approach and recovery methodologies.

— Testing of health and safety procedures.

— Operational testing of instruments, components and sub-assembly monitoring and research equipment.

Validation of their three Phase 2 sites is underway and will provide access to areas which can cater for a wide array of device testing including scaled and full-scale wave energy convertor technologies; component testing for floating offshore wind technology; plus, research and monitoting methodologies.

DEMONSTRATION ZONES

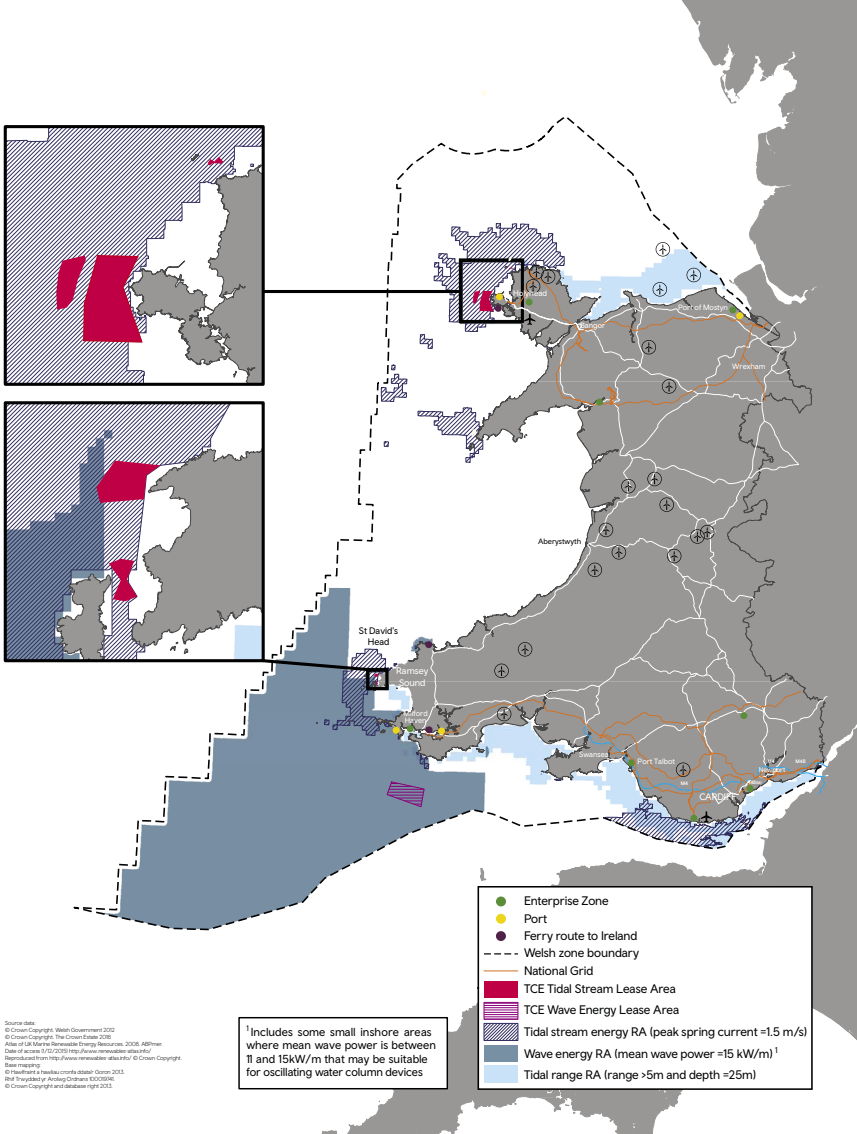
Wales has two marine areas which have received licenses from the Crown Estate to develop demonstration zones to facilitate the growth of the sector.

Morlais Energy is managing the development of the west Anglesey tidal stream zone and is working towards providing a fully resourced tidal demonstration zone.

Geralllt Llewellyn Jones, Managing Director said "now in the consenting process, Morlais expects to achieve consent by December 2020 and install infrastructure 2021 and early 2022, creating a Plug and Play facility for the third quarter of 2022".

Morlais Energy has completed a selection process and has made offers to several technology developers which are progressing through the legal process.

The south Pembrokeshire wave demonstration zone is 13 km off the coast and managed by Wave Hub. The area of seabed covers 90 km^2 and has a 19 kW/h resource. With support from the Welsh Government, Wave Hub has carried out a technical and commercial feasibility study. This study engaged with marine sector companies to gain a full understanding of the requirements for the demonstration zone.



[1] Includes some small inshore areas where mean wave power is between 11 and 15kW/m that may be suitable for oscillating water column devices

PORTS

RenewableUK have calculated that the marine energy sector could be worth more than £4 billion cumulatively to UK GDP by 2050, so a significant and long term supply chain base is vital as the sector moves towards commercialisation.

Wales has strategically located ports which provide valuable supply chain and deployment support for marine energy projects.

Ports here have reacted positively to maximise the market potential of renewable energy projects. A prime example would be the Port of Mostyn in north Wales who have made considerable capital investment to support the offshore wind energy sector which has enabled them to become RWE's preferred partner to service their three offshore wind farms in the area. The Port has also developed a comprehensive supply chain infrastructure to support the projects, which could provide significant input into the proposed marine energy development along the north Wales coast.

Holyhead Port is strategically located to support the west Anglesey demonstration zone and has actively worked alongside companies such as Minesto.

Similarly, Pembroke Port in south Wales has an extensive oil and gas supply chain infrastructure, delivering products and services to both sectors.

Pembrokeshire based companies such as Ledwood Mechanical Engineering, MarineSpace Ltd and Mainstay Marine Solutions Ltd have collaborated on recent marine energy projects.

We also have a thriving professional service sector ranging from Eversheds LLP and Hugh James solicitors, environmental consultancies such as MarineSpace Ltd and RPS Energy to PR companies such as BurningRed and Crystal Fish.

ACADEMIC EXPERTISE

Research and Development is supported through both industry and academia, with Wales-based researchers leading the way.

Wales has rich resources for academic collaboration. Many companies are already involved in research and technology transfer projects with academic institutions.

The Welsh European Funding Office has recently extended funding for several key research projects, including SEACAMS 2, a £17 million, three year project at Bangor and Swansea universities. Through SEACAMS, companies wanting to harness the sea's power and create a sustainable marine energy industry in Wales will be able to access vital research support they need if they are to be able to progress with their multi-million pound developments.

SEACAMS 2 is set to develop a network of coastal observatories to collect high-quality data and ensure its availability to potential developers.

"SEACAMS 2 will continue and expand Swansea University's commitment to supporting the growth of marine and coastal businesses, especially in the marine renewable energy and affiliated sectors, in the convergence area via state-of-the-art collaborative R&D activities with the industry."

Kam Tang
Professor of Marine Biology

Cardiff University is leading a £24 million project aimed at developing more intelligent ways of managing future energy systems alongside Swansea University and the University of South Wales. FLEXIS aims to meet the diverse, complex and inter-dependent challenges that arise when new sources of energy are integrated into the grid by suppliers.

The challenges are varied and include: accommodating power supply from multiple, somewhat random places; storing energy when it is not needed; coping with extreme flows of energy into the system; accommodating an ailing infrastructure; and making sure all challenges are met in a socially acceptable, affordable way.

"Seventy per cent of our globe is covered with oceans, so obviously if we can utilise all the moving currents around the world, that's going to make a big change. Our collaborations have expanded into working with Swansea University on mammal investigations and things like that. Those type of collaborations are going to be really important for Minesto and other investors coming here.

They're quite unique in the way that they can actually support businesses in what we really want and need. It's a big difference compared to, for example, Swedish universities. It's very high quality but also very supportive to developing businesses."

Dr Martin Edlund
Co-founder and CEO
Minesto

SEACAMS.

Siltbuster Ltd.

SUPPORT NETWORK

Join us in Wales and your business could work with a number of support bodies.

Marine Energy Wales (MEW) is one example. MEW is working alongside the public and private sectors to establish Wales as a centre of excellence in the field of sustainable marine energy.

Natural Resources Wales is Wales environmental regulator whose purpose is to ensure that the environment and natural resources of Wales are sustainably maintained, enhanced and used now, and in the future.

Their primary aim is for Wales to be a location of choice for marine renewable energy which is good for business, people and the environment.

Wales also works closely with the Crown Estate to deliver our marine energy aspirations.

Welsh Government is working alongside six partners including the Offshore Renewable Energy Catapult and RenewableUK to provide a comprehensive guide to the marine energy supply chain in the UK.

Registering with the Marine Energy Supply Chain Gateway is free of charge and offers a number of benefits:

— Access to a UK-wide supplier database.

— A customisable search function, allowing you to specify your requirements.

— The ability to create and save multiple search lists.

— The ability to view search results by location on an interactive map.

Interested? More details can be found here: **www.mescg.co.uk**

WHAT NEXT?

The opportunities for your sector in Wales are many and varied – so let's talk. Call one of our team to find out more about what Wales can do for your business.

Find out what Wales can do for your business:

UK—
+44 (0) 3000 6 03000
tradeandinvest.wales

The Welsh Government has four opportunities supporting the future development of the sector. Wales is entering an era of new environmental standards – and businesses from the UK and Europe are invited to play a part.

Print ISBN: 978-1-4734-7896-1 Cover image: © Tom Luddington/MEP.

+44 (0) 3000 6 03000
tradeandinvest.wales