

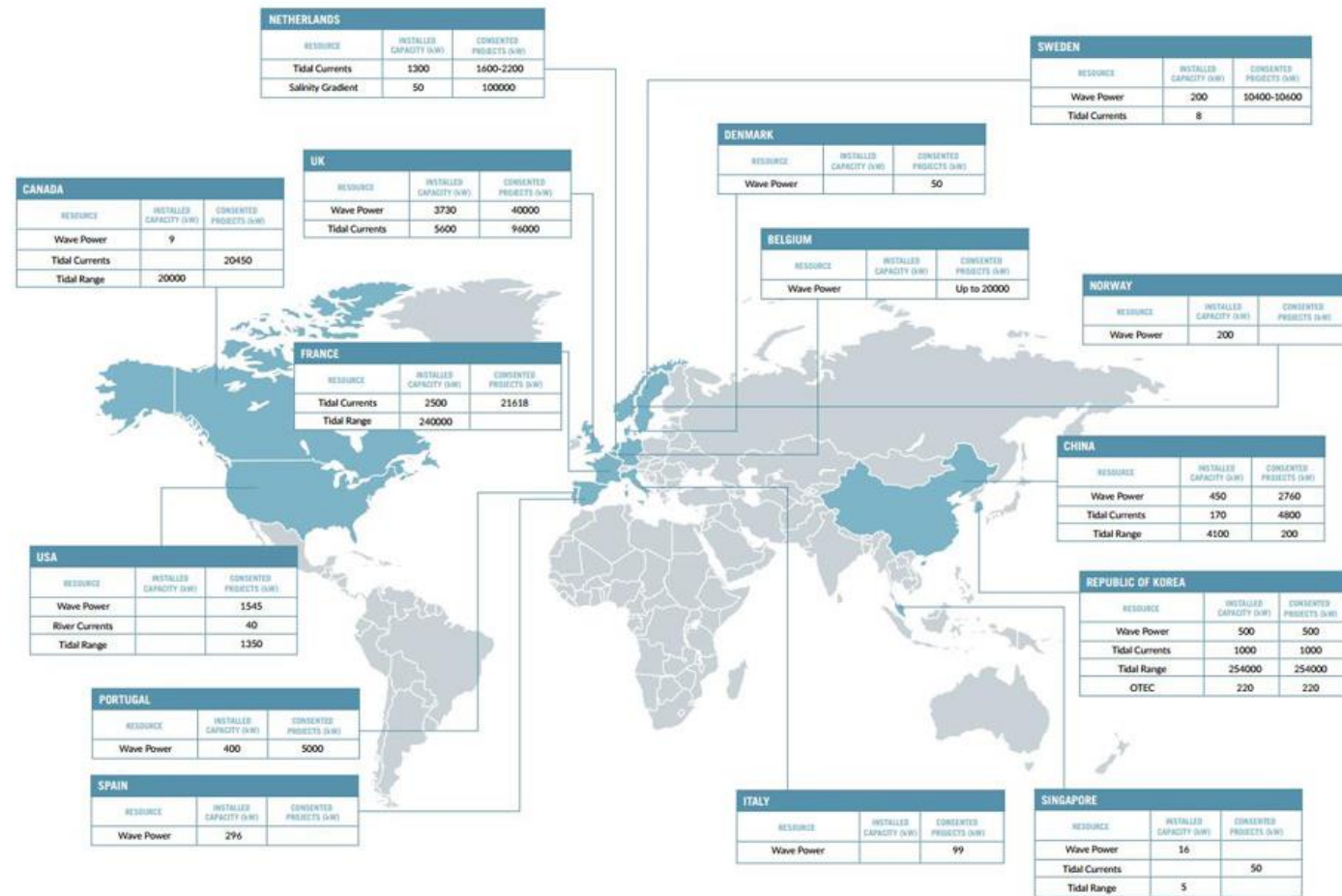
The Opportunity in Wales

Martin Murphy, Chair of Marine Energy Wales



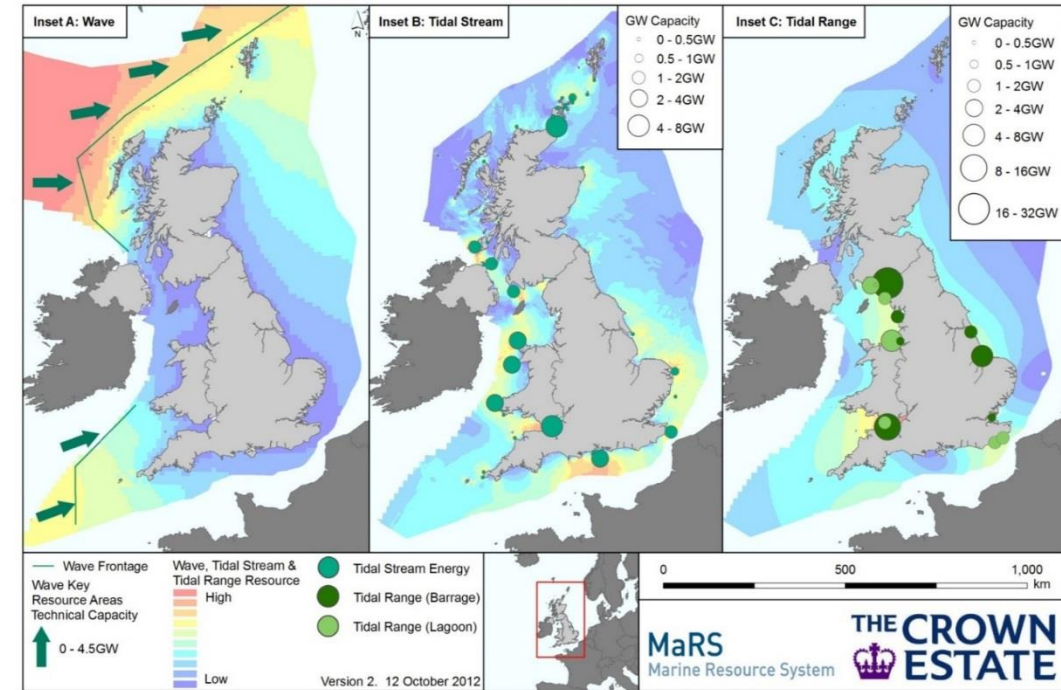
The global opportunity

- Global marine energy sector - worth **£76 billion** by 2050
- **A global market**
- **UK is leading the world**
- Sector could contribute around **£4 billion** cumulatively to UK GDP by 2050
- **1,700** employed in UK – could grow to **20,000** skilled jobs in next decade.



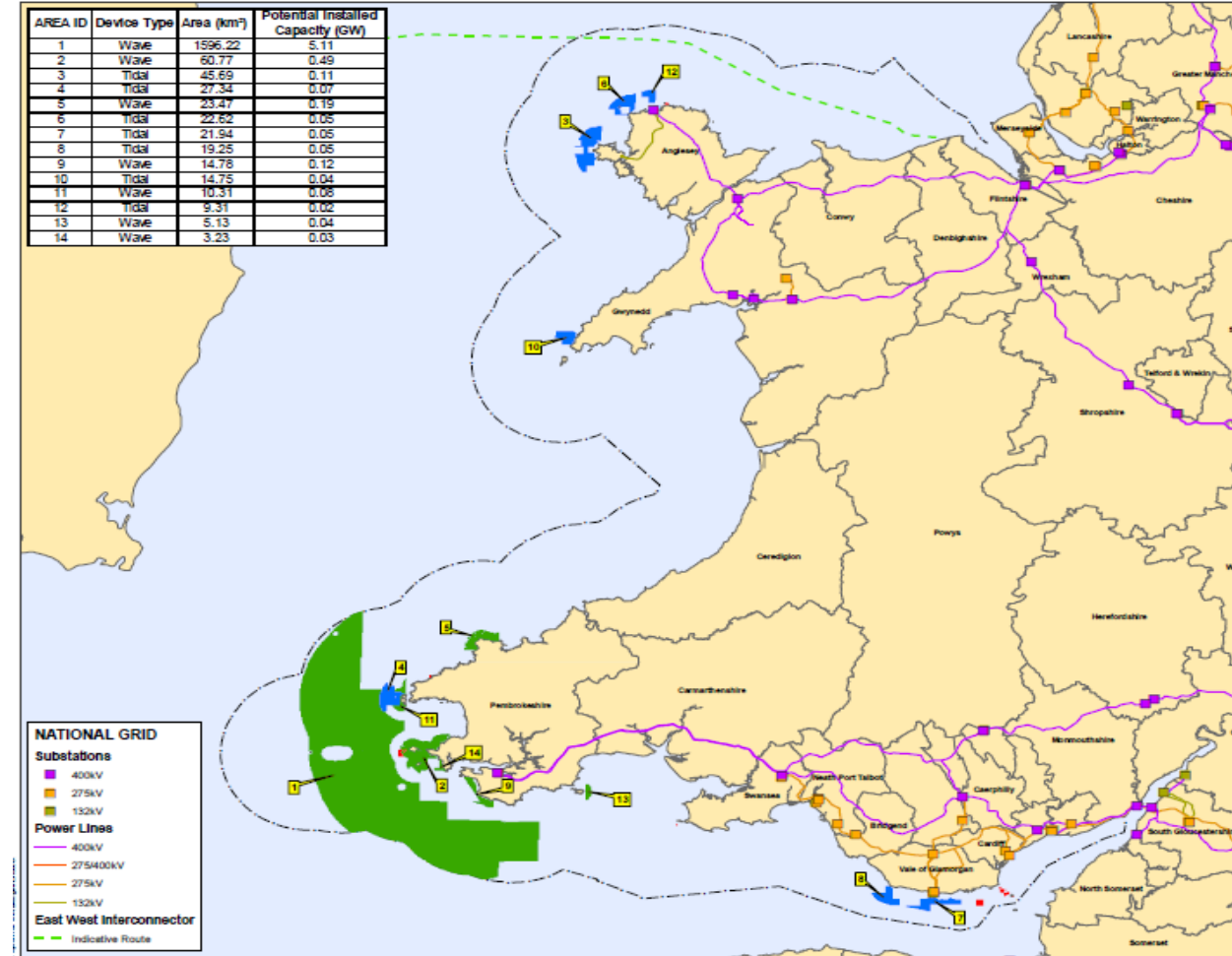
The British opportunity

- 12,000km of coastline, estimated capacity of **71TWh/yr**
- Multiple test facilities
- EMEC - **Grid connected 25 devices**
- **Demonstration zones**
- **Meygen** – largest tidal stream project worldwide – live this year – plans **398 MW**
- **Swansea Bay Tidal Lagoon** – **320MW** – will be largest tidal range project in world



The Welsh opportunity

- Excellent **wave and tidal resources**
- **400kV grid lines** located coastally
- **€100m** of structural funding
- Government backed **energy enterprise zones**
- Experienced **energy supply chains**
- Expert **academic & research facilities**
- World class **deep water port facilities**



Activity in Wales

Minesto - UK HQ in Anglesey, **80MW** project. Created **30 jobs** and planning **assembly and export hub** in Holyhead



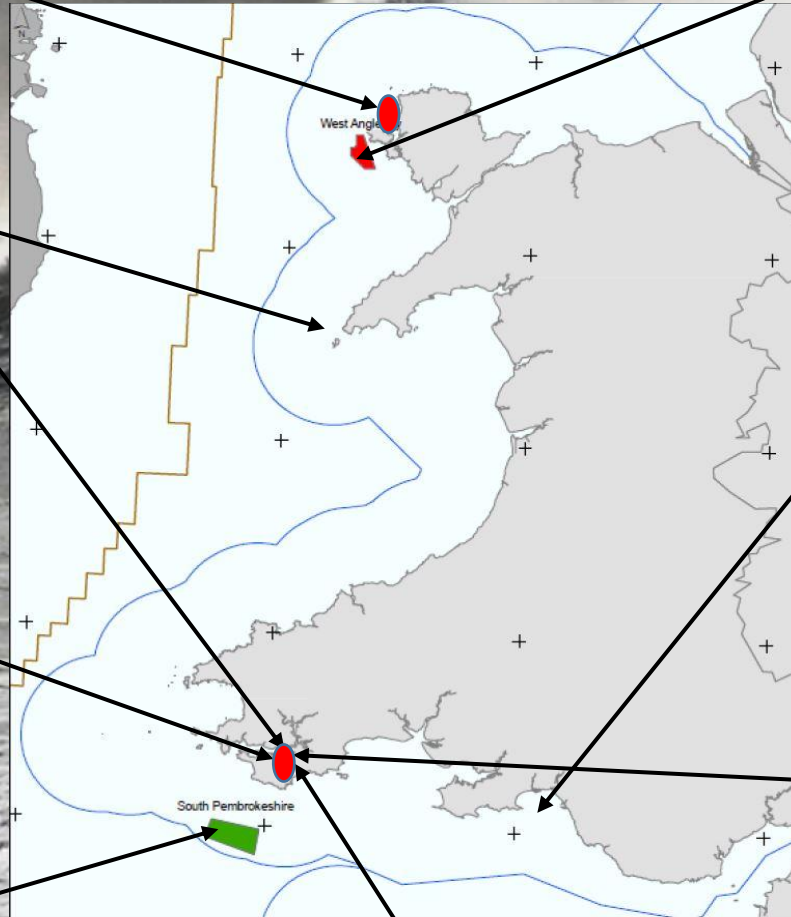
Marine Power Systems constructing ¼ scale WaveSub device in Pembroke Dock - £3m project
£2m WEFO



Wave-tricity constructed and testing Ocean Wave Rower.
£6m project,
£4.2m WEFO



World's largest wave energy seabed lease – **South Pembrokeshire Wave Demonstration Zone**. £324,000 funding from European Regional Development Fund and the Welsh Government.



FLOATING POWER PLANT



Eight tidal developers -awarded berths at the **Anglesey Tidal Energy Demonstration Zone**.
£33 million project consent and construction phase.



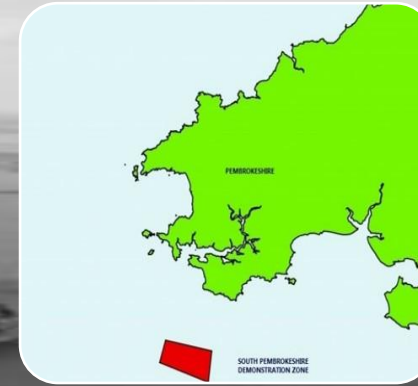
Swansea Bay Tidal Lagoon received development consent for **320MW** project – largest tidal range project in world



A £76m **Pembroke Dock Marine** (part of Swansea Bay City Region Deal) including a **UK Catapult led Marine Energy Engineering Centre of Excellence** and a **Marine Energy Test Area**



Pembroke Dock Marine



Marine Energy Testing Area

Creation of consented areas of waterway, close to operational base complete with licenses and enabling infrastructure.



Marine Energy Engineering Centre of Excellence

A coordinated, joint industry approach, disseminating lessons learnt for future projects and improving industry effectiveness.



South Pembrokeshire Wave Demonstration Zone

Largest seabed lease for wave energy in the world with the potential to support multiple wave arrays.



Pembroke Port

Redevelopment of existing space to incorporate increased deep water access, heavy fabrication areas and a new heavy lift facility.



Port of Milford Haven
delivering port infrastructure and services

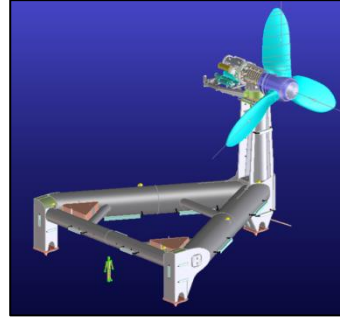
Tidal Energy Limited – A Case Study

Concept – R&D



Academia and
Consultants:
Cranfield
Cardiff
Swansea
Bangor

Design – Innovation



Stakeholders:
WG and WEFO
Regulators/NRW
Early Supply Chain

Delivery and Operation

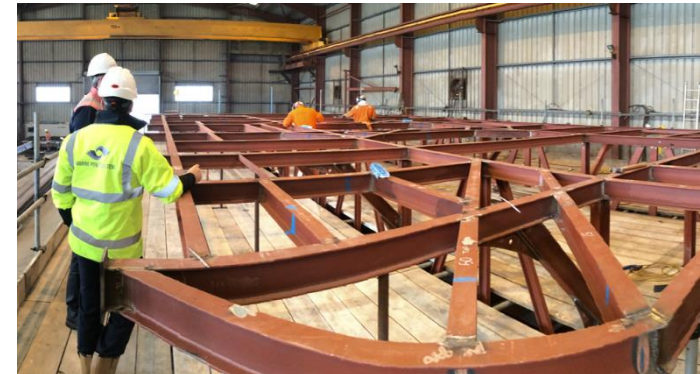


Supply Chain



Pembrokeshire – An established supply chain

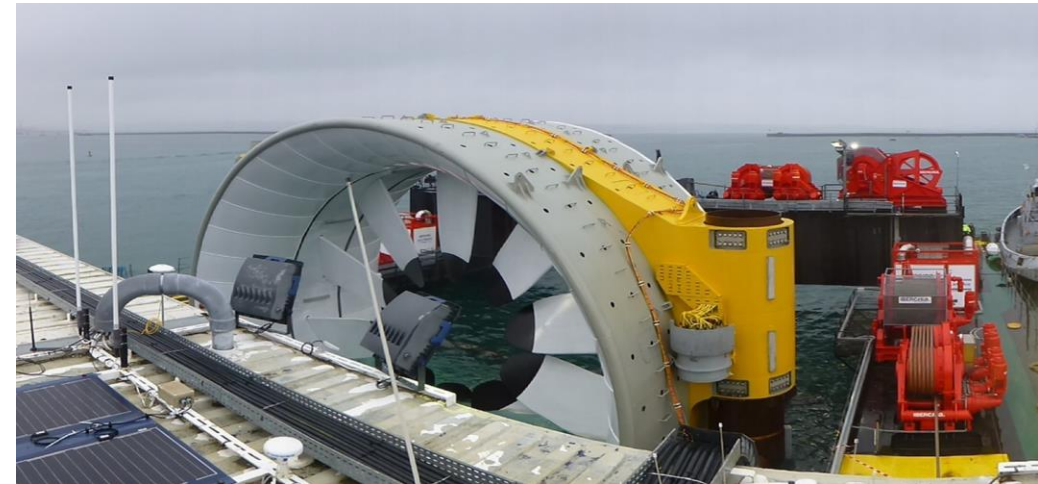
- An established energy sector supply chain and workforce with transferable skills
- Success stories



www.marineenergywales.co.uk

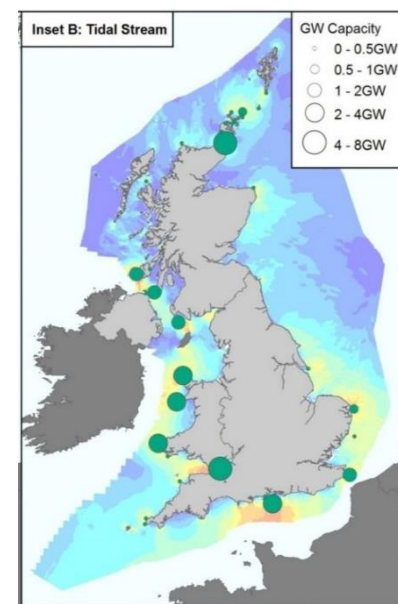
Barriers to development

- Changed (lost) government & policy support (Westminster)
 - Industry over-promised, under-delivered
 - Competition with other Renewables - unreasonable expectations
- Investor confidence; early stage projects
 - High cost of technology, high upfront cost
 - High risk
- Grid connection
- Underdeveloped supply chain
 - Sector knowledge
 - Accreditations
 - Tender experience



Wales – The economic opportunity

- Potential to create considerable value to the local Pembrokeshire economy
- Key resource areas are often located in remote, coastal communities
- Economic benefit to peripheral economies, to industry and communities where jobs are needed most.
- Supporting ports, supply chain clustering, diversification and resilience across the country





”Bringing together technology developers, the supply chain, academia and the public sector to establish Wales as a global leader in sustainable marine energy generation”

Welsh investment



INVESTMENT | JOBS | SUPPLY CHAIN
2017

£68.3 million direct investment in Wales to date
137 FTE jobs and 350 person years of employment to date
Predictions for over 50% of Welsh supply chain content
5 year investment plans of over £1.4 billion



- £68.3 million direct investment
- 137 FTE jobs
- Predictions for 50% + Welsh supply chain content
- 5 year investment plans of £1.4 bn



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