

UK Marine Energy Industry— status and challenges

Richard Boud

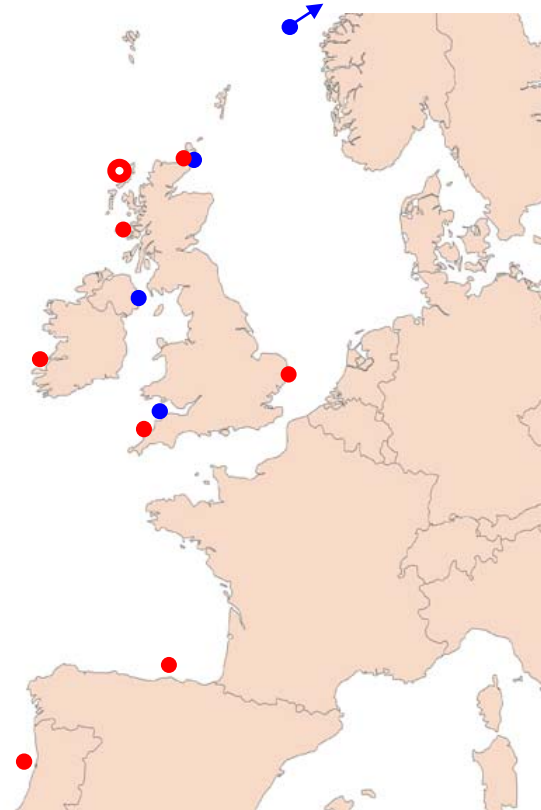
Devices in the water

Wave

- Wavegen – Voith Siemens – 0.5MW Islay
- OPT – 40kW – Spain
- Pelamis – 2.25MW – Portugal
- Pelamis – 0.75MW – EMEC
- Wavegen Siadar – 3-4MW – Lewis

Tidal stream

- Hammerfest Strøm – Norway
- Marine Current Turbines – 1.2MW – Strangford Lough
- Open Hydro – 0.25MW – EMEC



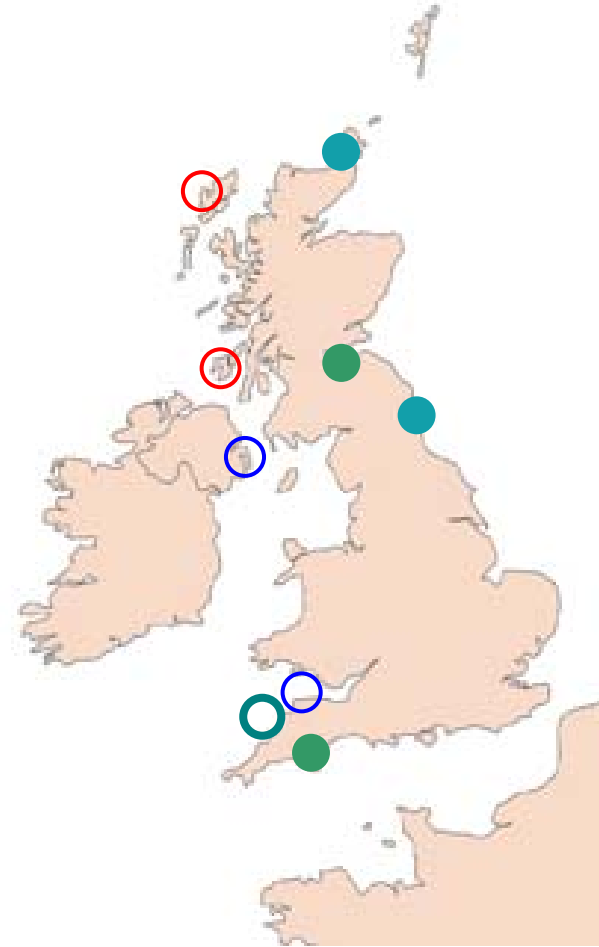
Test centres and research

Test centres

- European Marine Energy Centre (EMEC), full-scale grid connected testing
- National Renewable Energy Centre (NaREC), model scale testing
- Wavehub, full scale grid connected array proving

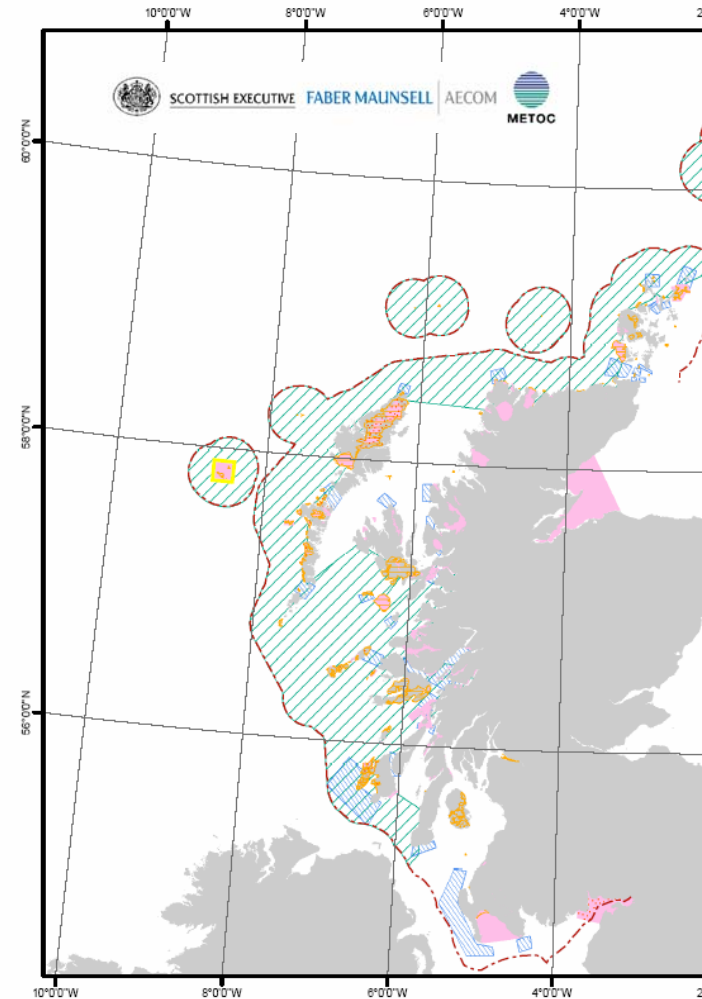
Academic research

- SUPERGEN – Edinburgh, Heriot-Watt, Lancaster, Robert Gordon, Strathclyde funded by EPSRC
- PRIMaRE – Exeter and Plymouth, funded by SWRDA



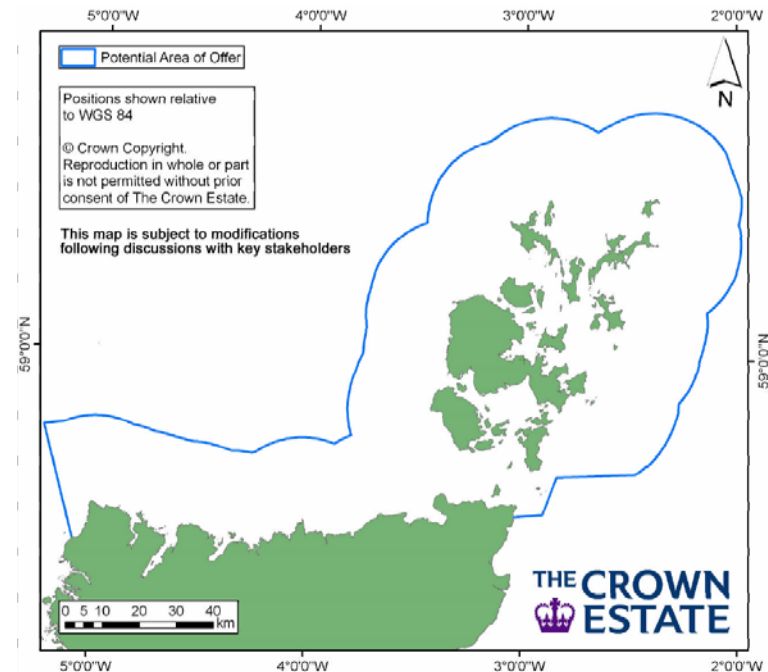
Unlocking the resource – Strategic Environmental Assessment

- Required under EU law
- Enables strategic deployment
- SEAs already completed for offshore wind and oil and gas
- SEA for marine energy in Scotland found 1-2.6GW possible with minor environmental effects
- Crown Estate now able to open Pentland Firth up for leasing
- SEA planned for NI
- SEA under scoping for England and Wales



Unlocking the resource – Crown Estate Pentland Firth Strategic Area

- Competitive allocation of sites
- Aim for 700MW by 2020
- Will bring economic benefits to Scotland
- Competition closed 15 May



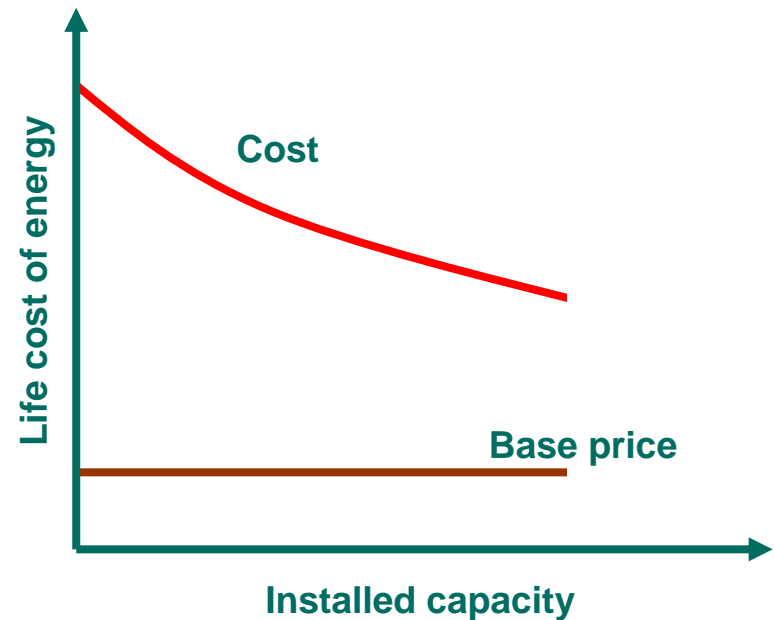
Unlocking the resource – The Marine Bill

- Bill with House of Lords due in the Commons Summer 2009
- Marine Policy Statement to set strategic objectives, by 2011
- Marine and Maritime Organisation to be set up to—
 - Manage the resource
 - Licence sites <100MW
 - Declare safety zones



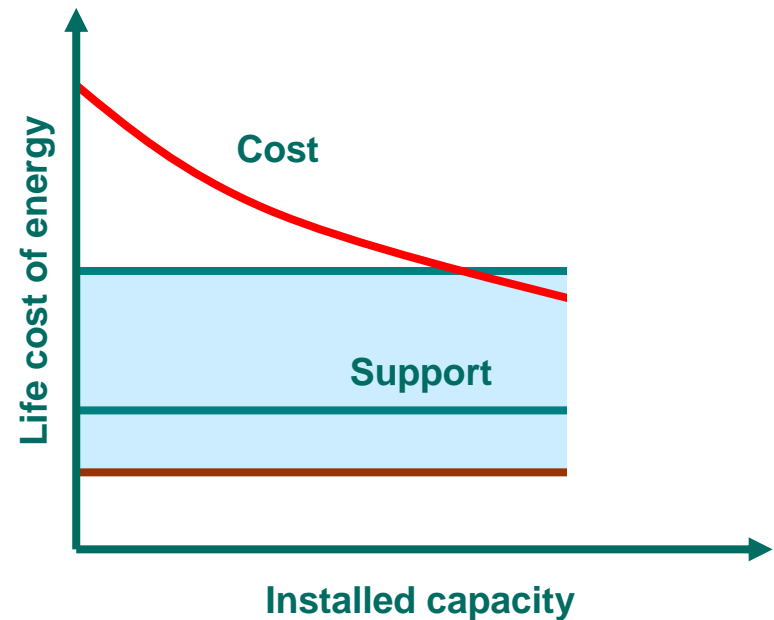
Challenges – demonstrating true energy costs

- Long-term market signal in Scotland – 3-5 ROCs
- Market signal in England and Wales is still needed
- Developers funding upfront risk
- No guarantee of a future market
- Operational experience needed to establish true costs
- Mainly private funding for this development phase



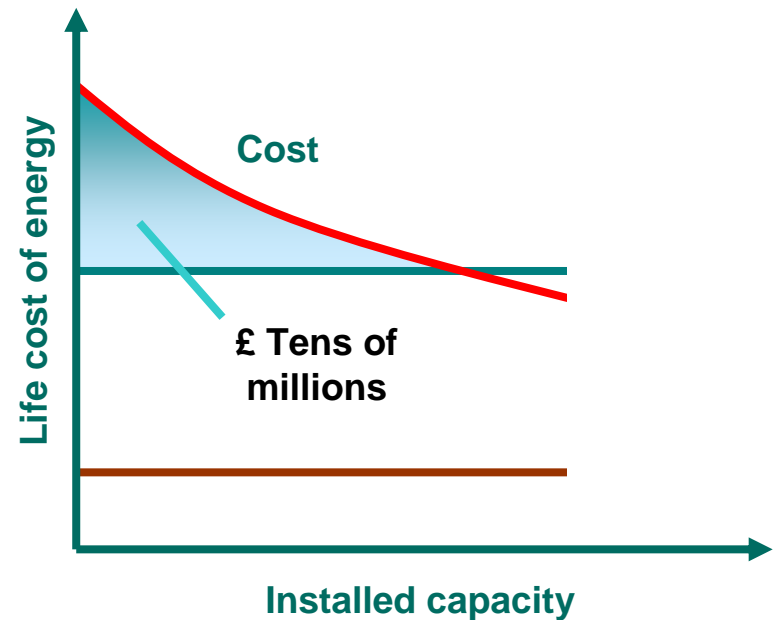
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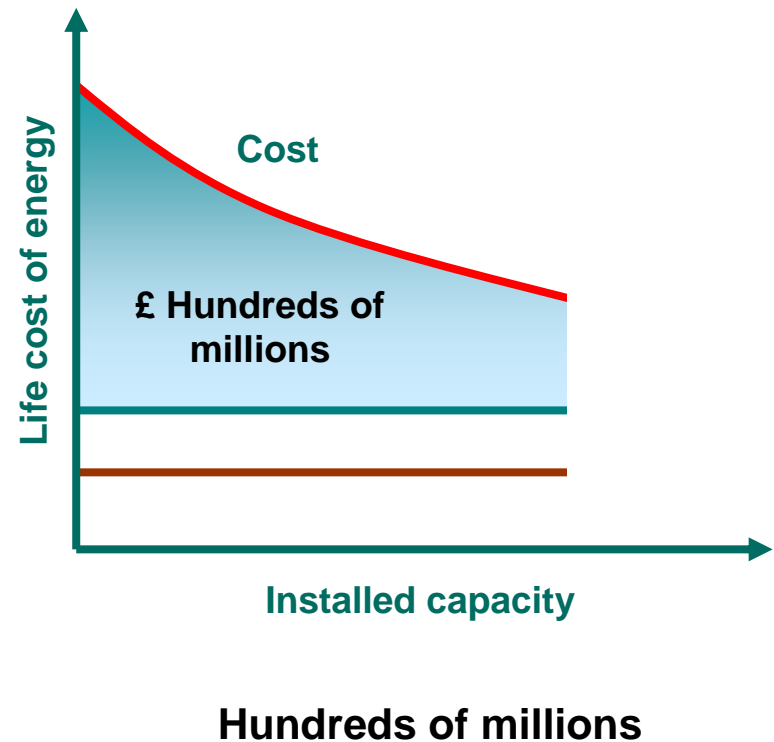
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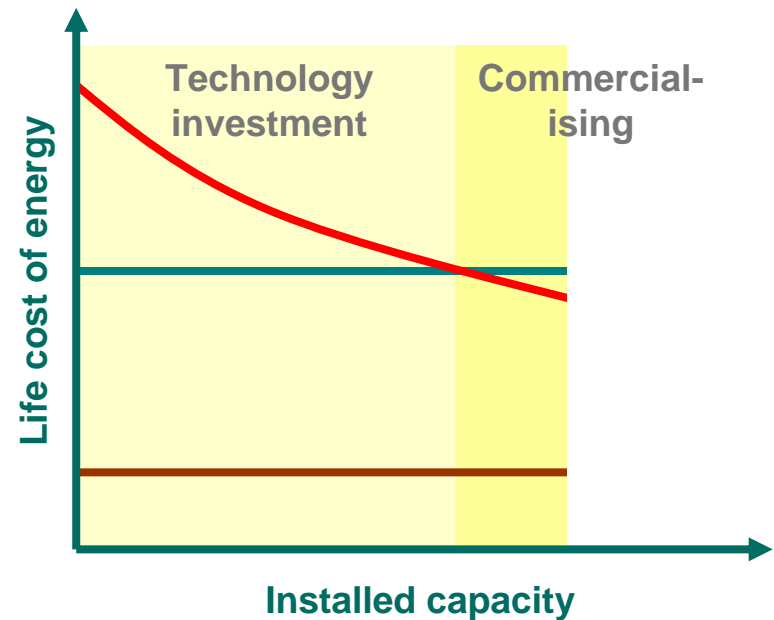
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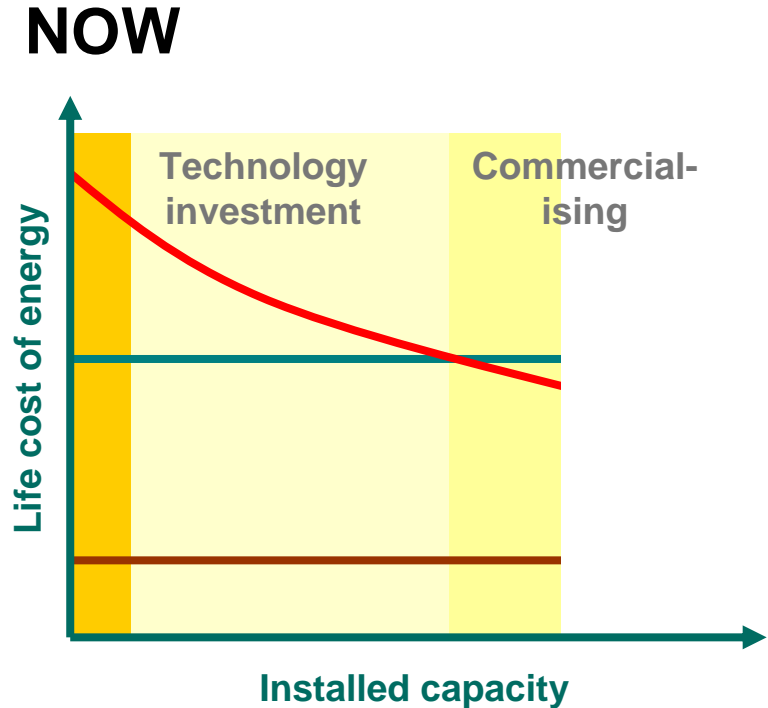
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Status and challenges

- Several technologies now under real-sea test programmes
- Developers are currently establishing device costs and performance – significant investment in this is still required
- The industry greatly values the test centres available in the UK
- Strategic Environmental Assessments in Scotland have unlocked the resource there
- Benefiting from the SEA, The Crown Estate are leasing the sea bed in Scotland – 700MW x 2020
- The Marine Bill should provide sound strategic direction for the industry
- 3-5 ROCs in Scotland represents a credible market pull
- Market support in England and Wales still needs to be proposed