Business and Trade Committee: Industrial policy inquiry
Marine Energy Council response

Introduction

The Marine Energy Council (MEC) welcomes the opportunity to respond to the Business and Trade Committee's (BTC) inquiry into the UK's industrial policy.

The MEC is the voice of the UK's tidal stream and wave energy industries. Established in 2018, the MEC's membership spans technology and project developers, key sites, manufacturers, and small and medium sized enterprises working in the supply chain. Our vision is for the marine energy sector to support a secure, cost-effective, and fair transition to net zero, enabling investment, exporting British innovation, and levelling up with employment opportunities across the UK.

When harnessed tidal stream and wave energy could provide over 30% of the UK's currently electricity demand.[1] Our response to the inquiry focuses on the industrial opportunity that marine energy presents and why the London School of Economics' Grantham Institute argues that the UK has a leadership position in marine energy and is comparatively more specialised in this area than in other clean technologies, including offshore wind, nuclear and CCUS.[2]

Predictable and consistent renewable generation, in a system that becomes increasingly reliant on intermittent sources, will be critical in delivering the UK Government's decarbonisation targets, and in ensuring economic growth opportunities are created and shared in coastal communities and beyond in the transition to net zero.

[1] Coles et al (2021) *'A review of the UK and British Channel Islands practical tidal stream energy resource*'. Available online. Jin et al (2021) '*Wave energy in the UK: Status review and future perspectives'.* Available online.
[2] London School of Economics (2023) *Seizing sustainable growth opportunities from tidal stream energy in the UK.* Available online.

Low-carbon technologies require a clear and consistent route to market to succeed

Marine energy development and deployment in the UK has been hampered by a lack of a clear and consistent route to market. This was addressed for tidal stream in the setting of consecutive ringfences in 2022 and 2023 in the UK's Contracts for Difference (CfD) mechanism. This has put the UK on course to have over 100MW of capacity deployed in its waters by 2028.

The tidal stream ringfence has had a positive effect in terms of investment into coastal areas around the UK. HydroWing, which will deploy a 10MW array in Anglesey is a good example of this, moving its turbine factory from the Netherlands to the UK.

Budgets and ringfences for the CfD are announced on an annual basis. The lack of certainty on whether there will be a ringfence in future rounds is damaging for investor confidence. New generation technologies require clarity and a consistent route to market to attract the private investment needed to drive the technology down the cost reduction curve. For tidal stream, costs are forecast to fall to £78/MWh by 2035, cheaper than new nuclear projects, and below £50/MWh by 2050, provided the right policy framework is in place.[3]

Wave energy has not had a ringfence within the CfD mechanism. This is despite significant technological progress being made by companies such as CorPower, which successfully piloted its wave energy device in Portugal, and the announcement of the Saoirse Wave project, a joint venture between Simply Blue Group and ESB which will deploy a 5WM wave array in Ireland. Simply Blue is also seeking a 5MW marine licence for a similar array in Orkney waters, utilising the European Marine Energy Centres (EMEC) wave berths. This pilot project is only possible if strategic revenue and funding support is provided. There is a significant increase of investments from major companies such as TotalEnergies, Aker Solutions, MOL+ in both CorPower and Mocean Energy offshore tests with the purpose to de-risk large scale wave energy projects.

A way to address the uncertainty inherent within the CfD mechanism (and the annual announcement of budgets and setting of ringfences) will be to set clear targets

The Marine Energy Council is calling for the Government to set targets to deploy 1GW of tidal stream energy and 300MW of wave energy by 2035. These targets should be supported through the creation of a marine energy taskforce, bringing industry, government and key stakeholders together to work on realising the UK's marine energy potential.

An industrial strategy should have clear objectives, including delivery of a cost-effective energy system

By setting targets the Government will indicate to industry and investors that it recognises the potential of marine energy and its role in delivering a cost-effective energy system. Deployment of just over 12GW of wave and tidal stream energy will **save UK households £1bn in energy system cost per annum**. This is due to avoiding expensive peaking generation and storage necessary in a net zero energy system dependent on intermittent renewables.[4]

Energy system benefit is not currently valued in the CfD mechanism. Instead, projects bidding are judged on its Levelised Cost of Energy (LCOE). This will not support delivery of the lowest-cost net zero energy system for UK households.

[3] ORE Catapult (2022) '*Cost reduction pathway of tidal stream energy in the UK and France*'. Available online.

[4] University of Edinburgh (2023) *Ocean Energy and Net Zero: Policy Support for the Cost Effective Delivery of 12GW Wave and Tidal Stream by 2050.* Available online.

An industrial strategy for the UK's net zero transition will help take a broader view and position UK households, communities, and businesses to benefit from opportunities created in addressing the climate change challenge.

Positioning the UK to benefit from the global net zero transition should be the aim of an industrial strategy

Over 90% of the world economies are now covered by net zero targets. As the International Energy Agency Net Zero roadmap outlines, reaching net zero requires rapid deployment of available technologies as well as widespread use of technologies that are not on the market yet.[5] It is critical therefore that technologies like marine energy are supported to develop and presents an economic opportunity for first movers.

According to the Intergovernmental Panel on Climate Change (IPCC), wave energy is the world's largest untapped energy source, which could provide clean electricity to over 500 million homes per annum.

Tidal stream is an entirely predictable firm power renewable resource. Its predictability means it can directly displace the current role that fossil fuels play on the energy system.

The demand for abundant and predictable renewable energy resources will grow as economies transition to net zero. Marine energy can deliver up to £41bn GVA benefit to the UK economy by 2050.[6] The London School of Economics has found that average returns on public investments in innovation in tidal stream is comparatively higher than investment in other renewable technologies, and that marine energy strongly supports balanced economic growth.[7] A significant amount of the economic benefit (50-60%) is expected to be generated in coastal areas that have been targeted in need for economic investment.[8]

In addition, average returns (on public investments in innovation) in marine energy projects are comparatively higher than investment in other renewable technologies and strongly support economic growth in coastal communities.[9]

The UK can harness its indigenous resource with indigenous supply chains

Marine energy is being delivering with significant UK supply chain content spend. Orbital Marine Power's O2 device was delivered with 80% UK supply chain spend. The O2 was conceived in Orkney, designed in Orkney and Edinburgh, built in Dundee with steel from Motherwell, blades from the Solent, anchors from Anglesey and hydraulics from the Midlands. In the first 18 months of operation of Nova Innovation's world-first offshore tidal array in Shetland, 98% of supply chain expenditure went to UK companies, with 60% going to companies in the Highlands and Islands region.

The UK's ability to act independently in developing supply chains and harnessing its marine resource is significant. By supporting marine energy now, the UK Government not only bolsters energy security but could embed UK supply chain content in projects around the world. Ocean energy has a global potential of 350GW by 2050.[10] The UK should seek to capture as much of this market as possible.

To successfully do this the Government requires a plan. Merely managing mechanisms without a strategic view as to what these mechanisms will achieve in the long-term will not support realising the UK's net zero potential.

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[5] IEA (2021) *Net Zero by 2050: A Roadmap for the Global Energy Sector.* Available online.
[6] University of Edinburgh (2023) *What is the value of innovative offshore renewable energy deployment ot he UK economy?* Available online.
[7] Resolution Foundation (2022) *The Economy 2030 Inquiry*. Available online.
[8] Catapult ORE (2018) *Tidal Stream and Wave Energy Cost Reduction and Industrial Benefit*. Available online
[9] Resolution Foundation (2022) *The Economy 2030 Inquiry*. Available online.
[10] IRENA (2023) *Scaling up investments in Ocean Energy Technologies*. Available online.

The aim of that plan should be to maximise UK content in renewable energy projects deployed in our waters and around the world. The UK Government through the Sustainable Industry Reward (SIR), in future renewable auctions which could give increased funding for projects with high levels of UK content. It should be noted that when supply chains have been established, shifting these can be incredibly difficult. The Industrial Strategy should therefore focus on areas where the UK can act to secure first-mover advantage and embed UK content in projects deployed globally.

An industrial strategy will be key in the UK avoiding the mistakes it has made in the international development of wind energy

In the 1980s Denmark invested early in their wind energy industry, delivering projects with high levels of local content, and developing its domestic market. In the process it gained first mover advantage and in exports alone its wind sector generates over £7bn annually for the Danish economy. In 2012, 88% of Denmark's exports were associated with tidal turbines and components.[11] By contrast the UK's wind sector, Europe's largest generator of wind energy, exports less than £0.5bn annually and is a net importer of wind technology, principally from Denmark.[12]

To date the UK Government's support for low carbon deployment has focussed on lowest cost today, rather than considering the different values of technologies

The CfD mechanism has been successful in rapidly increasing the UK's wind and solar energy capacity. However, the focus on Levelised Cost of Energy (LCOE), rather than the value of different energy sources, means the CfD has not delivered a diverse supply of renewable generation, jobs have been offshored and potential benefits to the UK missed. An industrial strategy is an opportunity to address some of these issues, whilst providing certainty to the renewable industry. This will be key in supporting energy security and a cost-effective net zero energy system.

An industrial strategy can set a clear direction for emerging technologies and give investors and industries the confidence to prepare for significant changes

To qualify and bid into the CfD projects are required to go through a leasing, consenting process and to secure a grid offer. This can be a costly process and as noted undertaken without a clear route to market in future years.

UK consenting processes, for example, can take, at a minimum, 4 years, and often longer. Relatively small-scale marine energy projects are required to go through the same consenting process as multi-GW offshore wind farms and face greater hurdles than onshore projects where a Section 36 consent is required for projects over 50MW (offshore requires a Section 36 consent for projects over 1MW). These issues are exacerbated by consenting agencies not having the capacity to respond in a timely manner to applications.

Connecting a marine energy project to the grid can take upwards of 5 years, often facing delays and uncertainty posing a severe barrier to investment and innovative technology deployment. The Government is seeking to address network issues through its Connections Action Plan. Emerging technologies and marine energy need to be involved in this conversation to ensure the opportunity is seized in the UK, rather than elsewhere. One of the benefits of marine energy is we have a good understanding of where the resource is located and coordinated action will allow network infrastructure to be ready for that capacity being connected to the grid.

An industrial strategy can align industry, government, and regulatory bodies with clarity on the direction of travel, and a shared vision of what the UK with a net zero energy system will look like. This

[11] Deloitte (2012) *Study of the macroeconomic impact of Wind Energy in Denmark*
[12] State of Green (2021) *The economic benefits of wind energy*. Available online.

will focus resource on areas that need to be address to expediate and address barriers on this transition.

Clear targets, supported by an industrial strategy will unlock investment from the private sector in going though these costly and lengthy processes.

A joint taskforce bringing industry and government together would be invaluable in realising the UK's potential

Maintaining the UK's global leadership in tidal stream and making progress towards being a global leader for wave energy, requires industry working closely with Government. In addition to an industrial strategy the MEC strongly advocates for the Government to establish a ministerial-led taskforce to work through barriers to getting technology in our waters.