

Written evidence submitted by Orbital Marine Power (IND0018)

How can UK plc capture its fair share of the economic potential of emerging or less developed energy technologies?

The UK has a strong international reputation for the development and delivery of tidal stream energy projects, with domestic expertise positioning the country as a global leader in this emerging sector.

Tidal stream energy can provide a material contribution to the UK's electricity demand from a completely predictable low carbon indigenous resource. It can be built with an exceptionally high UK content (80%+), supporting local industry and technical training by providing skilled labour opportunities while reducing exposure to volatile global energy prices.

The three consecutive ringfences for tidal stream energy in the Contracts for Difference (CfD) have delivered successful contracts. Allocation Round 5 (AR5) demonstrated the ability of the sector to respond to a £30m ringfence (when FLOW was unsuccessful). There is sufficient eligible capacity to ensure competition. The previous CfD rounds secured 40MW, 53MW and 28MW, with the last round seeing a decline in the contracted amount at a critical moment for industry growth.

As demonstrated internally in countries like Germany and Denmark in the 1990's when supporting the development of Wind energy, In any market or auction-based system, competitive pressure can drive companies to prioritise securing contracts over ensuring project deliverability. This often leads to value cannibalisation, where companies underbid to secure funding, potentially jeopardising project completion. The UK government must support emerging clean energy technologies to incentivise investment in supply chains. This will have a significant economic impact through the creation of skilled jobs across the UK. A revised approach to CfD allocation is needed to effectively allocate capacity and incentivise inward investment—not only to individual projects but also to the supply chain.

The current competitive bidding environment is introducing significant risks of project non-delivery, as evidenced by the development of advanced conversion technologies within the CfD framework. Despite ten projects securing CfDs, only one has demonstrated tangible progress. Even well-established technologies like offshore wind faced challenges in Auction Round 4, where bids were too low to achieve financial closure. These case studies underscore a critical gap in the support mechanisms necessary for emerging technologies to transition from concept to implementation.

Historical precedents, such as the outcomes of the Non-Fossil Fuel Obligation (NFFO) (see Text Box 1) and data on emerging technology non-delivery from previous CfD rounds (see Figures 1), highlight the challenges of using auction-based systems to ensure the successful deployment of emerging clean energy technologies.

A case study from the early 1990s wind energy auctions under the NFFO illustrates how these market challenges can manifest and negatively impact renewable industry development, as overly optimistic bids in the NFFO led to only 25% of awarded contracts being successfully deployed: slowing deployment, dissuading investment, and hindering overall progress of the wind industry in the UK.

Text Box 1 – NFFO Case Study

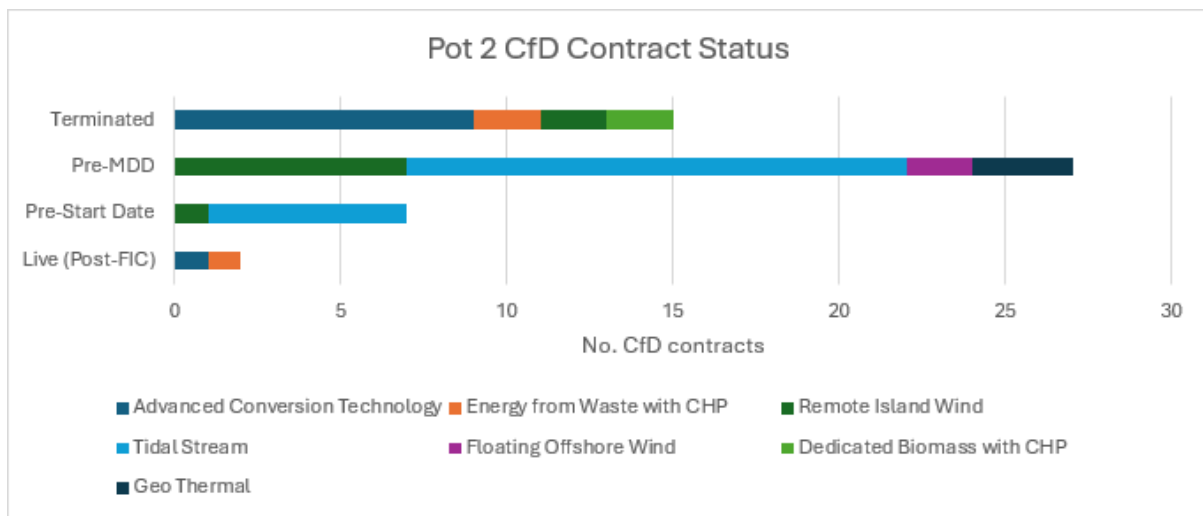


Fig 1 – Pot 2 CfD Contract Status

A fundamentally reshaped Pot 2 would help emerging UK technologies drive greater investment and progress toward net-zero goals while ensuring that a significant portion of supply chain content remains within the UK.

This approach recognises the successes achieved in the solar, onshore, and offshore wind sectors, where similar fixed price contracts have driven substantial deployment without compromising the industry's viability. Moreover, it aims to address the shortcomings of the current CfD system, ensuring that such critical innovations receive the backing necessary for successful implementation.

To maintain momentum, the UK Government should:

- Set a £30m ringfence for tidal stream energy in AR7 to drive sector growth and supply chain investment.
- Committing to long-term CfD reforms that provide stability and encourage supply chain investment for emerging technology with high UK content.
- Provide long-term policy certainty to encourage sustained investment in the sector.

What more can the Government do to encourage greater domestic supply chain investment in the energy industry by 2035, including through the Contracts for Difference scheme?

Tidal stream is an excellent case study for how predictable low-carbon energy sources can be manufactured with exceptionally high UK content. For example, Orbital's O2 turbine is the most powerful tidal turbine in the world. It was the first vessel to be launched from the port of Dundee in 40 years, with 80% of the build based in the UK, stretching from Orkney to Gosport, Anglesey to Scunthorpe.

However, the short term time horizon of the annual CfD allocation, does not provide the long term signal to supply chains to invest with confidence. The UK government must indicate a long-term commitment to emerging technologies and convince investors that new supply chain assets won't become stranded.

Immediate steps to encourage supply chain investment include:

- **A £30m ringfence for tidal stream in AR7**, providing stability for supply chain companies and allowing them to invest in infrastructure and skills development.
- **Longer-term CfD commitments for Energy Technology**, ensuring a clear pathway for price discovery and provision of sufficient certainty to investors and supply chains, reducing risk perception and improving project bankability.
- **Strategic government-backed financial mechanisms**, such as low-cost capital and public sector risk-sharing for supply chain investments, akin to those proposed under Great British Energy (GBE) and the National Wealth Fund (NWF), to support commercial-scale tidal projects.

Does the UK have the supply chain capacity to deliver the required energy infrastructure by 2035, including an expanded electricity network?

Many UK suppliers have the potential and appetite to scale up to deliver increased this sort of capacity, but they are hamstrung by the lack of certainty around potential project orders, especially in the emerging technology space, this is driven by the aforementioned lack of clarity of support in future CfD allocation rounds. Clear commitments and targeted support for proven emerging renewables technologies or projects could deliver the certainty these suppliers urgently need.

The development of Orbital's O2 turbine demonstrates the capability of the UK supply chain to deliver world-leading projects. However, scaling up will require:

- A stable and predictable policy environment for emerging renewables.
- Strategic investment in manufacturing and assembly infrastructure to improve efficiency and reduce costs.
- Support for tidal stream technology as an **oven-ready solution** that requires **low-risk and low-capital supply chain investments** compared to other emerging technologies.

To what extent would growing the domestic supply chain bolster UK energy security?

Enhancing UK energy security should be a priority for the government. In terms of energy policy, Orbital believes that the Government should take a long-term strategic view that goes beyond just price factors and continues to support clean energy generation technologies that can have a disproportionately positive impact on diversifying domestic supply and predictability in a secure future net zero energy system.

Tidal stream energy offers unique advantages in this context:

- Unlike wind and solar, tidal power provides a predictable and reliable source of clean electricity.
- It supports the creation of high-value employment opportunities, helping to retain skilled workers in the UK and fostering innovation.
- Previous UK government analysis suggests that tidal stream energy could meet up to 11% of the UK's electricity demand, offering a significant contribution to a secure, net-zero energy mix.

To ensure the UK's clean energy security, the government should embed tidal stream energy into its long-term energy strategy and provide the stability of market support that is needed to entrench a UK supply chain.

What are the key concerns with respect to the availability of raw materials in the supply chain and how might those be addressed?

By some significant margin, the largest raw material requirement for Orbital is heavy steel, including plate steel, castings, forgings and chain.

UK Government should establish centres of metallurgic excellence around proposed new electric arc furnaces for the purpose of creating steel products aligned with tidal/renewable manufacturing requirements.

Married with batching production processes developed to create electricity demand at periods of high wind generation (when there is low/negative power pricing) and efficient recycling practises capitalising on high quality UK scrap steel - low cost, low carbon steel products could give huge benefits to UK based suppliers, taxpayers and the environment.

Conclusion

Tidal stream energy represents a globally scalable, secure clean energy solution, with the potential for the UK to lead its commercialisation. Through a combination of policy certainty, financial support mechanisms, and supply chain investment, the government can enable the sector to transition from early-stage projects to a fully commercial industry that contributes significantly to UK energy security and economic growth.

Immediate actions include:

- **Setting a £30m ringfence for tidal stream in AR7** to maintain sector momentum.
- **Ensuring Great British Energy and the National Wealth Fund support tidal stream deployment** with targeted financial instruments.
- **Committing to long-term CfD reforms** that provide stability and encourage supply chain investment for emerging technology with high UK content.

By taking these steps, the UK can cement its position as a global leader in tidal stream technology, delivering economic, energy security, and environmental benefits.

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