

Contracts for Difference for Low Carbon Electricity Generation Consultation on proposed amendments for Allocation Round 7 and future rounds

Marine Energy Council response

Introduction

The Marine Energy Council (MEC) welcomes the opportunity to respond to this consultation on proposed changes to Allocation Round 7 (AR7) and future rounds of the Contracts for Difference (CfD) mechanism. A secure and cost-effective transition to net zero requires a diverse energy mix. As the primary mechanism to encourage renewable deployment it is critical that the CfD enables and accelerates investment in emerging technologies and innovative technology deployment.

The MEC is the voice of the UK's tidal stream energy (TSE) 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.

Our members are investing in the UK to realise its marine energy potential, which when realised will play a key role in the UK achieving net zero:

- **TSE** is entirely predictable and could provide up to 11%¹ of the UK's current electricity demand. This predictability can help reduce supply/demand mismatch in the energy system and reduce dependence on fossil fuels and imports. TSE can be deployed rapidly, with the potential construction time of a consented farm being less than three years.
- **Wave energy** provides a more consistent generation profile than solar or wind and could provide up to 20%² of the UK's current electricity demand. In addition, its harmonious relationship with wind means it can be co-located at offshore sites supporting a more cost-effective and efficient energy system.³

The CfD scheme 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.

The MEC believes that with a change of course from AR7 onwards these issues can be addressed, and the UK can secure its position as the world leader in marine energy.

¹ Coles et al (2021) 'A review of the UK and British Channel Islands practical tidal stream energy resource'. Available [online](#).

² Jin et al (2021) 'Wave energy in the UK: Status review and future perspectives'. Available [online](#).

³ In this response 'marine energy' refers to tidal stream and wave energy.

Executive Summary

It is welcome that the Government is considering changes to the way the CfD operates to support the scale and pace of renewable electricity deployment needed to reach its net zero targets. As the International Energy Agency Net Zero roadmap outlines, reaching net zero requires rapid deployment of emerging technologies, and yet deployed at scale technologies.⁴

Marine energy will have a key role in the UK's energy mix, and a secure and cost-effective energy system. Deployment of just under 13GW of marine energy will reduce annual dispatch cost from £13.5bn to £12.5bn, an annual saving of over £1bn for UK households.⁵

The UK Government should give advanced sight of ringfences being set in future allocation rounds.

The development of tidal stream energy (TSE) in the UK was hampered by a lack of a clear and consistent route to market, with no revenue support in the UK from 2016 until 2022. The introduction of a £20m ringfence within the CfD mechanism in AR4 and maintaining the ringfence in AR5 has put the UK on course to deploy over 100MW tidal stream capacity in its waters by 2028.

On the 6th March 2024, the Government announced the third consecutive tidal stream ringfence, set at £10m. This is a welcome development and demonstrates international leadership. However, the industry has no certainty that support will be available in future allocation rounds.

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 TSE, 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.⁶

In addition, for capacity to be 'eligible' to bid into the CfD mechanism, a project requires having a lease agreement, marine licence and grid offer in place. This is a costly process that projects will only go through if there is a clear and consistent route to market.

Currently wave energy technology competes within Pot 2 of the CfD. Without a ringfence for wave energy there will not be a successful project, despite the significant grid and economic benefits that the technology will deliver. The EU is supporting delivery of a 5MW array in Ireland, and there is a risk that the industry in the UK does not develop due to a lack of ringfenced support.⁷

Currently the Government announces ringfences months prior to the allocation round closing. A commitment to maintaining a ringfence for TSE, and introducing one for wave energy, will help prime supply chains to maximise UK content. This approach would create the environment to attract technology agnostic developers to invest in new sites, obtain development rights and increase the amount of eligible capacity available to be bid into future rounds.

If it is not possible due to the way the CfD budgets are announced the Government should set clear targets of 1GW tidal stream and 300MW wave energy deployment by 2035.

The introduction of hybrid metering will be critical in enabling co-location

Diversity and innovative deployment of renewable technologies will be key in optimising how the energy system is utilised. Waves are created by winds but provide a more consistent generation profile and can be harnessed 3-8 hours after the energy is initially harnessed by wind farms. Co-locating

⁴ IEA (2021) *Net Zero by 2050: A Roadmap for the Global Energy Sector*. Available [online](#).

⁵ SuperGen (2023) *What are the UK power system benefits from deployments of wave and tidal stream generation?* Available [online](#).

⁶ ORE Catapult (2022) *Cost reduction pathway of tidal stream energy in the UK and France*. Available [online](#).

⁷ Offshore Energy (2023) *EU innovation Fund backs two major ocean energy projects*. Available [online](#).

offshore wind and wave energy converters allows technologies to share assets and can reduce costs by 12% for both projects.⁸

The Government could consider committing to a pilot hybrid wind-wave project as a step toward commercialisation and position the UK to be a world-leader in innovative offshore renewable deployment. This follows the example set by the Netherlands for floating solar power, where the next generation of offshore wind farms are expected to deploy 5MW of floating solar capacity. This requirement is set to ramp up to 100MW for the next leasing round, creating a long-term market that will attract investment into innovative technology. A similar approach could be used to support hybrid deployment of wave power.

TSE is strongly positioned to, when partnered with battery energy storage system (BESS) technology, provide renewable baseload energy. Scottish tidal energy developer Nova Innovation has already piloted this approach with a pioneering BESS and tidal project, which has been operating since 2018 at their Shetland Tidal Array, providing flexible, reliable power to the grid. It is welcome therefore that the Government is seeking to support hybrid metering to incentivise innovative deployment of marine energy and BESS.

The Government should consider introducing a pot for early-stage innovation projects

This can include combining wind and wave devices as part of the same device, novel, and new approaches to improving the efficiency of existing infrastructure. The Government should consider how the CfD mechanism could support retrofitting existing projects with other devices and how this can be effectively incentivised. As noted above the energy system benefits to deploying wave and wind together are significant, however we have not yet rolled this out. Changes made for AR7 should be futureproofed or the Government dynamic to respond to when the market is ready.

As well as maintaining ‘market pull’ mechanisms for innovation the Government should go further in providing innovation support, or ‘technology push’ measures for marine energy. This will be key in reducing the LCOE and delivering a cost-effective energy system. Research by the University of Edinburgh shows that an increase in the technology learning rate from 10% to 15% has the potential to reduce the total investment required for tidal stream from £18.6bn to £3.3bn and reduce the total investment required for wave from £20.5bn to £3.0bn when delivering 6GW of each technology by 2050.⁹

The Government should consult on extending CfD lengths from 15 to 25 years for qualifying technologies

DESNZ is correct that currently there is no pipeline for repowering of tidal stream or wave energy, and it is welcome that these will be considered once a pipeline emerges. An area the MEC would support further consultation on is extending the life of CfD contracts. Longer term certainty around contract prices may help to lower the LCOE of projects bidding in and make the UK the most attractive location for marine energy deployment.

⁸ OWC (2023) *Wave and Floating Wind Energy, opportunities for sharing infrastructure services and supply chain*. Available [online](#).

⁹ 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](#).

Section 1 - Proposals for Allocation Round 7

Repowering

Question 1 - Do you agree that the eligibility criteria for full repowering appropriately balances CfD policy objectives of supporting decarbonisation, ensuring security of supply, and minimising costs to consumer?

The MEC supports the proposed criteria of balancing the need to ensure decarbonisation and security of supply with costs to the consumer. The MEC supports, for simplicity, repowered projects being awarded 15-year length contracts as is standard for CfD, however, and as noted in the Executive Summary further consultation on the length of CfD contracts for emergent technologies would be welcomed.

It is consistent to say that the intervention should align with the findings of REMA, however as that process is still open and ongoing it is not yet possible for industry to provide a nuanced view of how repowering will be consistent with REMA and changes within the energy system.

In addition, the Government should consider the value of the energy technology that it is seeking to support via repowering and ensure those that will deliver broader benefits are supported.

Question 3 - Do you consider that each project should need to at least retain capacity, or do you foresee any challenges with this assumption?

The MEC supports this assumption and enabling repowered projects to bid in with increased capacity.

Question 5 - Do you agree that all other technologies do not meet the eligibility criteria for AR7? If not, why not and what evidence do you have to support this position? We are particularly interested in any costs data and definitions you may be able to provide on the full repowering of respective technologies.

There is currently no pipeline for tidal stream nor wave energy projects that would qualify for repowering. The MEC welcomes the Government reviewing once this changes and a pipeline emerges.

Co-located generation and hybrid metering

Question 16 - To what extent do you agree with the identified challenges that the current CfD metering requirements creates, as set out?

The MEC welcomes consideration for how co-location could be enabled and facilitated as part of the CfD mechanism. Co-locating offshore wind and wave energy converters provides an opportunity to make efficient use of existing infrastructure, reduce project and system cost, whilst supporting energy security.

Research has demonstrated that co-locating wave and wind energy will deliver a saving of 12% in the Levelised Cost of Energy for both projects.¹⁰ However, despite this cost saving benefit, government mechanisms, the regulatory and leasing environment, and potential rewards do not incentivise wind developers to deploy wave energy converters (WECs) alongside or part of offshore projects.

¹⁰ Offshore Wind Consultants Ltd (2023) Wave and Floating Wind Energy. Available [online](#).

In contrast, the Dutch Government recently mandated 5MW of floating solar capacity to be co-located with the next generation of offshore wind farms. This requirement is set to ramp up to 100MW for the next leasing round, creating a long-term market of 3GW by 2030.¹¹ Offshore wind developers have been spurred into action to support R&D and integration efforts with a very emerging floating solar industry. However, this is a clear example of how industry can move quickly if appropriately incentivised / encouraged with clear nearer to longer term targets and top-down policies. This is an example that could be replicated in the UK context for wind-wave co-location.

The MEC agrees with the challenges that the current CfD metering requirements creates, but to enable co-location and multiuse of sea space, a more significant challenge is ensuring the CfD mechanism itself is managed in way that encourages multiuse. This could be achieved through introducing in future rounds an innovation pot for multiuse projects to bid into, or exploring how wind projects with an existing CfD contract could be encouraged to retrofit WECs in their projects. The introduction of the Sustainable Industry Reward (SIR) could be an opportunity to incentivise wind developers to consider multiuse.

Question 17 - To what extent do you agree that introducing hybrid metering would support innovation and more flexible use of CfD-supported renewable generation?

Hybrid metering will be critical to ensuring that co-located renewable projects receive the correct amount as decided by the CfD process. For example, the Administrative Strike Price for floating offshore wind and wave energy in Allocation Round 6 is £176/MWh and £257/MWh respectively. This price differential will be important to maintain to encourage investment in emerging technologies and innovative approaches to renewable deployment.

The Government should provide further information on how hybrid metering at an offshore site will function in practice. The example given in the consultation document is of CfD generation co-located with merchant generation, electricity storage and hydrogen production. Confirmation that two CfD generation assets could operate in this hybrid model will be welcome.

As noted, one of the key benefits of co-location is the sharing of infrastructure and development expenditure. The Government should consult on the cost benefits of CfD generation being behind a single meter, if through the sharing of data two different technologies can still be compensated, or pay back into the scheme, as aligned with their respective awarded CfD contracts. This may make retrofitting WECs into offshore wind projects with an existing CfD simpler.

Question 19 - Could you provide any evidence on the potential cost savings that could arise from introducing hybrid metering?

As noted, co-location of wind and wave assets can deliver significant cost reduction for both projects. Hybrid metering and enabling co-location will provide a clear route to market for wave energy and bolster investor confidence in this emerging technology. This will deliver significant benefits to the UK energy system. Deployment of just over 6GW of wave energy by 2050 will contribute to energy system cost savings of over £1bn for UK households.¹²

In addition to the cost-savings, enabling co-location will also encourage better and more efficient use of the UK's finite sea space. The distance between offshore wind turbines can be as much as 1km, providing ample opportunity and space for WEC deployments.¹³ Delivering a cost-effective energy

¹¹ 'Gamechanger' | Offshore solar farms poised for big league as Dutch set multi-gigawatt target | Recharge (rechargenews.com)

¹² University of Edinburgh, What are the UK power system benefits from deployments of wave and tidal stream generation? Available [online](#).

¹³ The Economist (2023) Harnessing wave energy along with offshore wind. Available [online](#).

system will require identifying opportunities for innovative renewable deployment, and the government working with industry to remove barriers for delivering these projects.

It is critical that hybrid metering and the CfD mechanism encourages multiuse of sites and two or more CfD contracts. Multiple renewable projects could be more cost-effective than intermittent renewables combined with storage. For example, combined wind and wave energy farm can significantly reduce the storage capacity (with power capacity up to 20% and energy capacity up to 35%) to meet the energy dispatch commitment to the local demand, and significantly decreases LCOE.¹⁴

¹⁴ Qiang Gao (2024) Techno-economic assessment of offshore wind and hybrid wind-wave farms with energy storage systems. Available [online](#).

Section 2 – Considerations for future allocation rounds

How could the CfD support innovation in floating offshore wind foundation technology as the sector develops?

Question 21 - What are your initial views on the proposed approach to determining technological eligibility for established and emerging technology tariffs in the CfD scheme? Include any early concerns or potential risks you may foresee. We are particularly interested in any potential gaming risks or unintended consequences you have identified.

Question 22 - If Government was to consider more tightly defining ‘established fixed-bottom’ offshore wind, with a view to then considering anything else eligible as an emerging foundation technology, do you have any initial suggestions on appropriate definitions or metrics by which to define ‘established fixed-bottom’?

Question 23 - The Government recognises the limitations of water depth for use in such definitions. However, should this be necessary, the Government welcomes views on the appropriate minimum depth requirement for emerging foundation technology deployment.

The MEC welcomes the Government recognising the need for the CfD scheme to evolve to maintain investor confidence and deliver a diverse renewable energy portfolio that supports a secure and cost-effective transition to net zero.

A challenge for emerging technologies is maintaining a clear and consistent route to market. The UK Government has demonstrated international leadership in setting consecutive tidal stream ringfences. However, the lack of clarity and certainty on future support is damaging for investor confidence, caused in part by CfD budgets and ringfences being set on an annual basis. Committing to an ongoing ringfence or setting clear targets for marine energy and to working with industry to deliver these, will bolster investor confidence and expediate realising the UK’s tidal stream and wave energy potential. This will be key in driving marine energy technologies down the cost reduction curve.

The Government is right to ensure that the CfD does not stifle innovation. One area which should be kept in consideration is co-locating wave energy and floating wind projects as part of the same hybrid platform. This technology will not be ready in time for Allocation Round 7, however any changes that are made should be future proofed to allow for a project to bid in future rounds. Such a project should have access to higher administrative strike prices.

To encourage development and deployment of a combined wind and wave platform the UK Government should provide innovation support to the sector. The introduction of a separate CfD funding pot for early-stage innovation projects could support leveraging private sector investment into early-stage innovation projects.

How could the CfD support delivery of improved coordination of offshore transmission infrastructure?

Question 24 - Do you agree with the Government's assessment of bootstrap-connected projects?

The MEC agrees with the Government's statement that further work on bootstrap-connected projects is required to understand how they will be categorised in future CfD auctions.

Question 25 - Do you agree with the Government's assessment of the role of the CfD in the HM and OBZ models?

Question 26 - Do you have any evidence on the additional costs and benefits to consumers of an OWF-MPI arrangement?

Delivering renewable deployment to the benefit of UK households and businesses needs to be prioritised in future allocation rounds. Multi-Purpose Interconnectors (MPI) and the impact on encouraging renewable deployment in the UK needs to be researched and understood prior to implementation. The MEC is particularly concerned by the Flexible CfD proposal which may see UK households pay a top up to renewable energy being harnessed elsewhere. This may lead to perverse incentives.

The MEC believes that asset-life CfDs is an interesting proposal to consider in its own right, and that the Government should launch a consultation with UK renewable projects, and those seeking to bid into future allocation rounds, to understand how this might impact cost. Longer contracts may lower project risk, and support projects reduce the Levelised Cost of Energy sooner.

Should CfD indexation be updated to better reflect inflation risks?

Question 28 - The Government is interested in views on whether a change in the inflation-indexation of CfDs could help to future-proof projects against macroeconomic shocks in future. Please provide supporting evidence where possible.

Question 29 - Do you consider that a change to the way CfDs are indexed in future could better protect against inflation risk for developers, whilst also protecting electricity consumers from unreasonable costs? Please provide supporting evidence wherever possible.

The MEC supports bespoke indexation which accurately reflects the price challenges that renewable technologies face. As part of bespoke indexation, it is important that the Government should continue with indexation across an entire CfD contract.

Maintaining investor confidence in the CfD will be critical to ensuring it continues to deliver and accelerates renewable deployment. As noted earlier a more pressing issue for emerging technologies is the way ringfences are announced on an annual basis. This lack of certainty is damaging for investor confidence, and investment in the UK's coastal communities and supply chains.

The MEC believe the Government should focus on setting appropriate Administrative Strike Prices; and sufficient ringfence sizes that will deliver multiple projects.

Question 30 - Do you think electricity consumers, who ultimately fund CfDs, should bear greater construction risk through more comprehensive inflation protection to accommodate commodity price increases?

Ensuring value for money for electricity consumers could be a key part of a bespoke indexation that reflects the actual costs renewable projects face. The MEC is in favour of a mechanism that explicitly accounts for construction cost as part of a bespoke indexation mechanism.