

Introducing non-price factors into the Contracts for Difference Scheme

Marine Energy Council response

Introduction

The Marine Energy Council (MEC) welcomes that the UK Government is considering the introduction of non-price factors into the Contracts for Difference (CfD) scheme. The transition to net zero will create new opportunities, green growth, jobs, and supply chains. The MEC wants these benefits to be secured in the UK.

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, consultants, associations, 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.

The UK has significant marine energy potential, which when realised will play a key role in the secure, cost-effective, and fair transition to 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, rather than the value of different energy sources, means the CfD has not delivered a diverse supply of renewable generation. This will be key in supporting energy security and a cost-effective net zero energy system.

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' is used to refer to tidal stream and wave energy.

Executive Summary

While the CfD has been successful rapidly scaling up deployment of wind and solar, it has been less successful in providing a route to market for marine renewables. The introduction of a minima for TSE in Allocation Round 4 (AR4) changed that, contracting over 40MW of capacity.

TSE projects are being delivered with 90% UK supply chain content spend, is strongly positioned to support levelling up in coastal communities and beyond, could provide between £5bn and £17bn GVA to the UK economy by 2050,⁴ while providing an entirely predictable renewable firm power resource to the UK energy system.

Wave energy is at the cusp of being ready for ringfence support. It is the world's largest untapped renewable energy resource and studies show that co-location with wind could reduce overall cost for both wave and wind developer by around 12%.⁵

The UK should seek to lead the world in marine renewables. In doing so it will deliver many of the aims set out in the Non-Price Factors consultation.

Key points

Changes to the CfD should be managed in a manner that maintains industry confidence in the mechanism.

- Pot structures should continue, with dedicated pots or ringfences for emerging technologies like tidal stream and wave energy. This allows the Government to have control in terms of the amount of spend and to direct investment to technologies which clearly demonstrate they can deliver against the UK's broader NPF ambitions.
- The Government should consider setting multi-year (3+) CfD budgets with clarity on ringfences. Setting multi-year budgets will allow projects to prepare, support investor confidence by providing clarity of direction from the Government, whilst priming supply chains to maximise UK content for TSE and wave. Multi-year budgets 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.
- When setting a minima, the Government should consider a soft constraint to ensure more projects are supported, and avoiding a scenario whereby the budget is not fully utilised.

The UK should take strategic view of the clean energy industries that it has the potential be a world-leader. Setting a 300MW cap for projects that can benefit from non-price factors (NPF) is counterproductive.

- At the point that projects are bidding in projects over 300MW, the benefits of supply chains, jobs and investment may already have been realised elsewhere.
- 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. By contrast the UK's exports less than £0.5bn annually and is a net importer of wind technology, principally from Denmark.⁶

⁴ University of Edinburgh (2021) *What is the value of innovation ORE deployment to the UK economy?* Available [online](#).

⁵ OWC (2023) *Wave and Floating Wind Energy, opportunities for sharing infrastructure services and supply chain*. Available [online](#).

⁶ State of Green (2021) *The economic benefits of wind energy*. Available [online](#).

The MEC supports the following NPFs being rewarded:

- **System benefit** – as noted TSE is entirely predictable, and wave energy works harmoniously with wind to deliver a more consistent generation profile from key sites. The Government should consider setting a ‘top-up’ for predictability and diversification of supply services that TSE and wave energy provides to the UK energy system.
- **UK supply chain CAPEX** – supporting projects that invest in UK supply chains will have the knock-on effect of delivering the aims of the NPF consultation. As noted by The Resolution Foundation in its Economy 2030 report, technologies like tidal ‘are not only likely to generate relatively high national economic returns, but also have the potential to contribute to regionally balanced growth.’⁷ Investment in wave and tidal technologies in less innovation-intensive regions generate strong returns, imperative for the net zero transition. In addition, it will be easier to track UK CAPEX than other NPFs which may be hard to quantify and ensure value for money.
- **Innovative deployment** - projects that make use of existing assets and support innovative deployment should be supported. Evidence shows that combining wave and wind will reduce project cost by 12%, whilst making more efficient use of existing network infrastructure.⁸

The CfD may not be the right mechanism for many of the goals the Government is considering.

- The MEC agrees with the ambitions that the Government sets out in the consultation, however, it is not clear that the CfD is the right mechanism for delivery of these. This includes investment in assisted areas and investment in infrastructure. Ultimately the cost of the CfD is borne by customer bills, which is inherently regressive. The Government should consider if funding through general taxation is fairer approach to securing and supporting the investment required in these areas.
- Support for NPFs in the CfD should only be introduced if there is not an appropriate alternative mechanism outside of the CfD to deliver these.

The MEC’s preferred model for supporting NPF is the top-up model.

- The top-up model is the simplest way of rewarding the behaviours that the Government is seeking to support, without adding unnecessary complexity to the CfD mechanism.
- The amending valuation formula runs the risk of rewarding free riding, as projects that are not delivering against the desired NPFs will benefit from a high strike price.
- Bid re-ranking runs the risk of arbitrarily setting a limit on the reward a project will receive, regardless of whether it is performing better than a competitor based on an NPF. For example, if a limit is set at 60% for securing a full score against an NPF regarding UK content, a project delivering above this percentage would not be rewarded accordingly.

⁷ Resolution Foundation (2022) *The Economy 2030 Inquiry*. Available [online](#).

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

Call for Evidence Questions

Please provide supporting evidence with all views provided. In terms of a mechanism for implementation, views are invited on:

1. To what extent do you support the top-up model as a mechanism for implementing Non-Price Factors and are there any unintended consequences that come from this model?
and
2. To what extent do you support the bid re-ranking model as a mechanism for implementing Non-Price Factors and are there any unintended consequences that come from this model?
and
3. To what extent do you support the model of amending the valuation formula as a mechanism for implementing Non-Price Factors and are there any unintended consequences that come from this model?

The introduction of Non-Price Factors (NPFs) should not alter the existing pot structure in the CfD.

The ringfence for tidal stream energy (TSE) introduced in Allocation Round 4, and within the emerging technologies Pot, was critical in contracting over 40MW of tidal stream capacity. Without the ringfence TSE technologies would not be able to compete on Levelised Cost of Energy (LCOE) with other technologies that have received greater support both in the UK and internationally.

A purely LCOE focussed approach will not deliver the most cost-effective net zero energy system in the future. Predictability, dependability, and the role that a diverse energy generation portfolio has in supporting energy security, is not considered, or valued. The Pot structure and having ringfence support allows the Government to target and develop emerging technologies, whilst retaining control of the price to UK households, which will benefit significantly from the Government supporting the development of emerging renewable technologies.

The UK renewable industry will benefit from advanced sight of future CfD budgets and ringfence amounts.

Whichever model is applied providing industry sufficient time to prepare and adjust will be critical. The same logic applies to budgets and ringfences which are currently set annually, and do not give sufficient lead times for renewable industries. Providing advance sight of upcoming allocation rounds, with ongoing ringfenced support, will support investor confidence, sustainable growth of UK supply chains and avoid the risk of a feast and famine effect for marine energy.

Any introduction of NPFs should not threaten the ongoing ringfence for TSE, and the introduction of a ringfence for wave energy when the technology is ready for a route to market.

The MEC believes that the top up model is the simplest of the proposals outlined in the consultation.

However, it still adds an additional complexity to the Contracts for Difference (CfD) process, which could affect what applicants bid into the auction if it is expected that costs could be recovered elsewhere.

The CfD has been the primary instrument for renewable deployment in the UK since 2014. It has been successful in rapidly scaling up wind deployment in a cost-effective manner. That the Government is considering NPFs is a welcome development. The transition to net zero is an opportunity to create green jobs, level up communities, and position the UK to be an export leader as 90% of the world's economies are covered by net zero targets.

Depending on the extent to which NPFs are valued, it may not be possible to seize this opportunity through the CfD alone. Domestic content of early offshore wind was around 32%. There is an aspirational target for companies to meet 60%. Valuing bids enough to align with government objectives around growing UK supply chains and capacity, will increase the cost of the CfD. Alternatively, bids may not be valued sufficiently to challenge those not using high levels of UK content, in which case broader goals will be missed.

For marine energy the potential to reinforce an established UK supply chain and lead the world is significant. 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 MEC believes that the top-up model provides an opportunity for companies acting in a manner that support broader UK net zero aims to be rewarded. In addition, the Government should consider if the CfD is the right mechanism to achieve broader aims, and not shy away from introducing different or additional mechanisms that have proven to be successful in other countries.

Amending the valuation formula as a mechanism, as proposed, could risk free riders being rewarded.

If a company that is not delivering projects aligned with the UK Government's goals receives an increased CfD price due to other projects that are, this risks increasing cost to consumers without securing broader benefits for UK households. As the cost of the CfD is ultimately borne by UK energy customers the Government should consider whether this is appropriate, especially as the consultation aims to minimise consumer impacts of the CfD.

However, it is right that technologies and renewables that are creating jobs, sustaining industries and enable the UK to be a world-leader should be supported, to avoid the risk of the UK falling behind other countries. The United States' Inflation Reduction Act is already pulling investment and supply chains from the UK and is making over \$1.7bn available to marine projects.^{9 10}

Bid re-ranking will be a crude instrument for delivering UK goals.

The MEC is concerned that bid re-ranking may not be effective in realising the goals that the introduction of non-price factors will deliver. Of the three models proposed this contains the most risk in terms of unintended consequences and strategies around reranking a CfD bid risking delivery of the aims that the introduction of NPFs seek to support.

The MEC is concerned that bid reranking based on a points system may cap benefit to the UK. For example, if a project scores full marks for delivering over 60% UK supply chain content spend, it will receive the same benefit as a project that is delivering 90%. If a points system is introduced, it should be done so in a way that does not artificially cap the potential NPF benefit, based on what is realistic/achievable in more developed technologies.

⁹ The Times (2023) *Biden's green subsidies could lure gigafactory away from Dundee*. Available [online](#).

¹⁰ US Government (2023) *Building a Clean Energy Economy: A guidebook to the inflation reduction act's investments in clean energy and climate action*. Available [online](#).

Research has demonstrated that TSE projects can deliver around 76 full time equivalent jobs during a project's construction, and 5.5 jobs for each MW and year during operation.¹¹ This significant benefit for locals in coastal communities and beyond needs to be recognised and not undervalued.

The benefit of supporting emerging technologies is demonstrated by the Orkney experience and the European Marine Energy Centre (EMEC). EMEC has contributed 370 million gross value add (GVA) to the UK economy. £263 million of that was accrued in Scotland; and half of that, £130 million, in the Orkney Islands. To date £42 million public funding has been invested in the centre by public sector organisations; thus over £8 has been accrued for every £1 spent by the public purse. EMEC has created highly skilled, high value jobs and is now one of the top 20 employers in Orkney. The number of people directly employed increased from 44 to 85 between 2017 and 2023, with average earnings higher than the Orkney average.

The unintended consequences will be dependent on the NPF pursued and how these are valued.

The NPFs pursued, and how these are valued, will have an affect on the unintended consequences that could be caused, and how participants may act under an altered CfD mechanism. It is right that the Government will re-evaluate and review how effective NPFs have been in securing broader net zero ambitions. To support this process the Government should set out clearly what outcomes it wants to achieve from its transition to net zero, how these will be measured, and whether NPFs being considered in the CfD mechanism is the best means of achieving the desired outcome.

4. Are there any additional risks of unintended consequences (e.g., for renewable energy deployment, auction design / competition and consumers) you have identified with certain models and think should be considered?

If NPF models are introduced to replace the pot structure with ringfences there is a significant risk that a diverse energy generation portfolio will not be delivered. The issues that the introduction of NPFs aim to address may be exacerbated if pots and ringfences do not continue.

If it is the Government's intention that this new model will replace the existing structure then the NPFs would have to be significantly valued as to allow emerging technologies that are supporting UK jobs and supply chains, to compete with those that can be delivered in the short-term at a lower cost. However, as the consultation seems to set out the intention that the NPFs will be an additional benefit rather than primary focus of the CfD mechanism, this is unlikely.

Regardless of the impact on pot structure, the larger number of NPFs that are applicable to a project entering the allocation, the greater the complexity of awarding a CfD in a fair and transparent manner, and the greater the complexity to monitor. If there is a long list of NPFs that projects are evaluated on there is a greater risk that these become too disaggregated, and it will become too difficult to meaningfully differentiate between projects effectively. The total NPF thresholds reached by each project could be very similar. This is particularly relevant to bid reranking and amending the valuation formula.

To help streamline the number of NPFs this could be simplified to mainly focus of UK CAPEX.

¹¹ Element (2019) *Socioeconomic Analysis Plan*. Available [online](#).

As noted in our opening section, diversification of supply and incentivisation of predictable generation could be dealt with separately through pot structures, the use of ringfence and long-term bilateral technology mechanisms.

5. Ways in which the models for a mechanism for implementation could be improved?

The MEC propose that the NPF mechanism is accompanied with continued pot structure and use of minima.

When considering the use of technology specific pots and minima, Government should use these to support both diversification of future energy mix and to provide a direct incentive to support emerging technology sectors that have a track record of UK manufacture (CAPEX spend) and that the UK has already established a global lead, helping to secure future exports.

6. Are there alternative mechanisms that government should be considering (including models outside of the CfD mechanism)?

Set multi-year CfD budgets.

Emerging technologies will benefit from the Government setting multi-year CfD budgets, which will provide advanced sight years prior to allocation rounds.

Currently the Government announces the CfD budget, Administrative Strike Prices, and the inclusion of a ringfence months prior to the allocation round closing. Undertaking the leasing, consenting and network requirements to make capacity eligible for bidding in to the CfD takes multiple years. This means there is a disconnect between the processes industry must undertake and the policy environment which is not providing certainty that having been through the process to make capacity eligible for the CfD, that the ringfence or budget will exist.

Advanced sight of budgets will help prime supply chains to maximise UK content for TSE and wave. Multi-year budgets 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.

The Government needs to be responsive to external changes. In setting multi-year CfD budgets, or at least giving an indication of whether there will be a ringfence, would not preclude ongoing consultation or changes closer to the relevant allocation round. It would provide a signal of intent and create the environment for emerging technologies to secure investment and be supported down the cost reduction curve.

Consider expanding bilateral technology agreements to emerging technologies that provide a distinct service to the energy system.

Establishing bilateral agreements or mechanisms with specific technologies, as has been undertaken with the nuclear industry should be explored. The nuclear example provides a case study where Government has contracted a set volume of capacity at a set price, over a set period to achieve a deployment ambition, helping to achieve a prescribed future generation mix. The predictability of tidal stream energy and its generation profile should be considered in a similar fashion.

Hinkley Point C was contracted in 2016 and is currently not scheduled for first power until 2028, a 12-year lead time and market signal to prepare a 3.2GW project, starting at a CfD price of £92.5/MWh. Once tidal stream energy has transitioned down the cost curve, the Government could structure a multiyear bilateral agreement to contract up to 3GW of tidal stream energy at a cost in the region like Hinkley Point C. There are in fact probably more similarities between TSE and nuclear energy, and tidal stream energy and offshore wind, in terms of supply chain ramp up, lead times (for 3GW of fabrication) and predictability of generation. This could be easily monitored by a Wider Benefits Realisation Plan and is currently being undertaken for Hinkley point C.¹²

Feed-in-Tariffs for projects below 1MW should be considered.

The current CfD mechanism awards contracts based on the lowest Levelised Cost of Energy (LCOE). This has been successful in increasing renewable capacity from 7% of the UK's electricity supply in 2010, to over 40% today. However, a great deal of the cost-reduction achieved was because of other countries supporting indigenous renewable manufacturing sectors and supply chains. These countries are now benefiting from thriving export markets.

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.¹³ 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.¹⁴

The UK has an opportunity in marine energy to learn from the example of Denmark which introduced FiTs for wind, and provided long-term support which created the conditions to develop companies, supply chains and lead the world in wind exports.

The Government should consider tax breaks for companies investing in British technology companies.

A PwC survey of its clients found that 89% of businesses believe green incentives will stimulate investment in the scenario that it would provide additional or accelerated tax relief, with only 7% stating there was no need for a green investment scheme. The Government has designed capital allowances to incentivise investment in North Sea oil and gas, it should extend this relief potential to investment in new technologies.¹⁵

This is a means of competing against the US's Inflation Reduction Act, and the EU's response, without burdening UK households or taxpayers.

To further support the UK's leadership in marine energy and emerging technologies the Government could introduce a Norway-style system of R&D tax credits. Targeting energy companies that include innovative new technology in their offshore projects would enable near term deployment, confidence growth, and support decarbonisation of the North Sea, as well as creating export opportunities in global markets. The North Sea Transition Authority stated in its latest Emissions Monitoring Report that "the sector is not on track to meet the 2030 target on the current BAU [business as usual] trajectory"¹⁶ and highlights the essential role of electrification to meet the target (i.e. a 50% upstream

¹² BEIS (2018) *Hinkley Point C Wider Benefits Realisation Plan*. Available [online](#).

¹³ Deloitte (2012) *Study of the macroeconomic impact of Wind Energy in Denmark*

¹⁴ State of Green (2021) *The economic benefits of wind energy*. Available [online](#).

¹⁵ PWC (2023) *Capital allowances reform – a green opportunity?* Available [online](#).

¹⁶ North Sea Transition Authority (2022) *Emissions Monitoring Report*. Available [online](#).

emissions cut compared to 2018 baseline). The integration of different offshore technologies, particularly renewable ones such as wave energy, can play a crucial role; a demonstrator project is currently underway in Orkney involving tech developers, integrators, and operators¹⁷. Such wave energy solutions providing local green power to offshore and subsea infrastructure are ready for commercial rollout, particularly if the market is incentivised.¹⁸

The CfD mechanism could introduce a pot or mechanism to encourage innovative deployment of renewables.

It is welcome that the Government is considering *capacity building* as one of its key NPFs. One of its aims is to support collaboration on existing infrastructure. One way this could be achieved is through introducing in a future CfD allocation round a specific funding mechanism for innovative deployment, specifically considering co-location of renewable technologies.

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 than wind and can be harnessed 3-8 hours after the energy is initially harnessed by wind farms. Co-locating offshore wind and wave energy converters allows technologies to share assets and can reduce costs by 14%.¹⁹

Supporting a pilot hybrid wind-wave project as a step toward commercialisation will position the UK as 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 in the UK.

The Government should establish a strategic taskforce to realise the UK's marine energy potential.

Providing a route to market and clarity of support is a critical, but not the only, requirement for the UK to realise its marine energy potential. A ministerial-led strategic taskforce working with the industry will identify and unlock barriers to marine energy deployment. This has been successful in the offshore wind industry and the establishment of the Offshore Wind Industry Council.

The Government should consider supporting alternative risk transfer to enable financial close of marine energy projects.

The Ocean Energy Accelerator proposal, developed by Renewable Risk Advisers, would create a protected cell company (PCC) captive insurer as a structure to overcome the failure of the insurance market to provide sufficiently robust insurance products to enable new ocean energy projects to be demonstrated and commercially deployed.²⁰ The insurance market is unwilling to commit capital to relatively untested technologies with limited historic performance data, and with the ensuing lack of insurance cover in turn discouraging investment into the sector. The introduction of a PCC will encourage increased equity investment from the private sector into emerging technologies, which will support many of the goals set out in the NPF consultation.

¹⁷ The Maritime Executive (2023) *Baker Hughes Joins Startups to Test Wave Power for Offshore Oil & Gas*. Available [online](#).

¹⁸ Offshore Energy (2023) *Mocean Energy picks preferred fabricator for wave energy devices*. Available [online](#).

¹⁹ OWC (2023) *Wave and Floating Wind Energy, opportunities for sharing infrastructure services and supply chain*. Available [online](#).

²⁰ TIGER (2023) *The Ocean Energy Accelerator*. Available [online](#).

7. Which projects (in terms of size) and technologies do you think should be eligible for non-price factors?

The MEC strongly recommends that all applicants to the CfD mechanism should be able to benefit from delivery against NPFs (if introduced). Many of the technologies that are being bid under the 300MW benchmark are from industries that have the potential to deliver significant benefit to the UK economy.

The UK has an opportunity to create over 4,000 jobs in tidal stream by 2030 with over 50% of the economic benefit expected to be generated in coastal areas.²¹ By 2040, and including wave energy, the number of jobs supported could support more than 22,000 jobs.

The Resolution Foundation in its Economy 2030 report notes that technologies like tidal 'are not only likely to generate relatively high national economic returns, but also have the potential to contribute to regionally balanced growth.'²² Investment in wave and tidal technologies in less innovation-intensive regions generate strong returns, imperative for the net zero transition.

At the point that a project developer can bid in 300MW+ projects, other countries are likely to have developed and embedded supply chains, secured first-mover advantage and will reap the benefits from worldwide deployment of said technology. The Policy and Innovation Group from the University of Edinburgh recently estimated that TSE alone could provide between £5bn and £17bn GVA to the UK economy by 2050.²³

The MEC is concerned that if technologies that are currently bidding for contracts below 300MW are not included the UK could miss an opportunity to secure and maintain international leadership in key renewable technologies for delivering net zero.

8. Are the factors outlined above on addressing capacity building, sustainability, skills and innovation, the right ones to meet supply chain challenges, and are there any unintended consequences or issues in terms of monitoring, that could come from these?

The MEC supports the factors the Government sets out and provides views on these below, and additional NPFs that should be considered in response to question 9.

Capacity building

As noted, TSE projects are already being delivered with upwards of 90% spend in UK supply chains and SMEs. The MEC would welcome this being included as an NPF. It is important that this is not capped say to 60% UK supply chain spend, and that the more projects support UK supply chains and SMEs the greater the reward they receive.

The MEC strongly supports the introduction of an NPF that supports collaboration to utilise existing infrastructure and existing UK manufacturing. In response to Question 6 we set out the ability of wind and wave to co-locate, reduce energy system costs, and make efficient use of existing assets.

²¹ORE Catapult (2018) Ibid.

²² Resolution Foundation (2022) *The Economy 2030 Inquiry*. Available [online](#).

²³ University of Edinburgh (2021) *What is the value of innovation ORE deployment to the UK economy?* Available [online](#).

Rewarding the funding of industry initiatives is an interesting proposal. We would welcome further information or examples of what sort of initiatives the Government has in mind. To reiterate an earlier point the Government should consider whether the CfD is the right mechanism to secure this funding for additional initiatives. It may add an unnecessary layer of uncertainty as to whether infrastructure investment will be delivered where it is needed, if this is based on renewable projects successfully bidding into the CfD mechanism.

The Government is right to identify that investment in infrastructure, particularly ports and grids, is required to realise its net zero ambitions. Further information as to how this would work in practice is required, the MEC's initial view is that this funding should not be through the CfD mechanism which is ultimately borne by UK households.

As noted in response to Question 7 there is strong evidence that investment in marine energy supports balanced growth and jobs in post-industrial communities across the UK. It is highly likely therefore that tidal stream and wave energy projects would score highly against this NPF metric. However, the MEC believes the funding for regeneration of these areas should not come through the CfD, unless it is given a larger budget and support from other governmental departments like the Department for Levelling Up, Housing and Communities.

There are many NPFs associated with Capacity Building. In line with the principle of simplifying the NPF process, it is suggested that the Capacity Building NPF should be limited to only the value of CAPEX placed in the UK supply chain.

CAPEX investments into the UK supply chain will drive knock on impacts of infrastructure investment (as UK supply chain will invest is required infrastructure to win contracts if these can be provided with long term contract certainty), skills and innovation. Unlike other areas, UK CAPEX is easily audited through contracts placed and they also lead to development of UK skills that can create onward export opportunities, and a multiplier on the money "invested" through the CfD.

OPEX figures should not be accounted for as an NPF, as these are easy to capture and likely already established or necessary work to come from within the UK.

Sustainability

The MEC welcomes that Government considering how the CfD mechanism can support projects that can deliver renewable deployment in a more sustainable manner. Studies show that the lifecycle emissions of marine energy projects are relatively small.²⁴ If sustainability is included as an NPF Scope 3 emissions should be included. Overall, this would be difficult to monitor, and it may be more effective to drive positive performance through carbon taxation.

Decommissioning should be dealt with at the point of decommissioning. To reward a project now through a 15-year CfD price for adopting a solution that could be completely obsolete at the point of decommissioning is imperfect and impractical. The level of sustainability should be linked to tax allowances (carried back against previous years profits) that reduce the cash impact of decommissioning activities based on the level of recycling achieved and verified at the point it is completed.

²⁴ University of California - M. Jacobson – Review of solutions to global warming

Sustainable Procurement should factor in with the capacity building point listed above but should only be associated with CAPEX, not OPEX. This should specifically consider scope 3 emissions, which ties in with the concept of incentivising UK manufacturing.

Skills

UK companies have highly relevant existing skills in offshore industries such as oil & gas and offshore wind, as well as other industries with transferable skills, such as aerospace and shipping. The UK has existing skills in subsea engineering, offshore foundation design and manufacture and marine operations. There are substantial crossover skills in electrical grid connection and the UK is a global leader in technology development and project development for both tidal stream and wave.

It is not appropriate for the cost of apprenticeships or reskilling to be put on household energy bills. The MEC strongly supports investment in both these areas, but this should come from a mix of private investment, general taxation and ensuring the latter incentivises the former.

Innovation

The marine sector is supporting investment in R&D and the utilisation of new technologies in the construction phase of tidal stream and wave energy devices. However, leveraging private sector investment into R&D could be better delivered through other means than including this onto CfD bids.

There is currently limited innovation support or demonstration programmes are available for MRE in the UK, and ongoing uncertainty around UK participation in the Horizon programme is damaging.

R&D support has been - and will continue to be - crucial in enabling further step-change technology cost reductions, with significant impact on overall learning investment to reach competitive LCOE. A 2021 paper by Kerr et al. suggests that a 10% step-change cost reduction can reduce overall learning investment by approximately a third on the road to achieving target LCOE.²⁵

Research by the University of Edinburgh has revealed that between 2017-2022 wave energy received £39m funding (with WES accounting for £35m of that total) and TSE only £15m. This lack of investment puts the UK's global lead at risk and should be addressed with urgency and outside of the CfD mechanism.²⁶

9. Are there alternative non-price factors that should be considered?

The Marine Energy Council supports the following being considered alongside the existing proposed NFPs:

Delivery of a diverse renewable energy generation portfolio.

The goal of delivering a diverse renewable energy generation portfolio should be an explicit aim of future CfD rounds. This will be important in supporting energy security and resilience against a range of external conditions.

Modelling carried out by Research by Imperial College London shows that tidal stream can directly reduce natural gas capacity required to ensure energy security by about 40%.²⁷ As more than half of UK gas is imported, firmer power renewable energy resources like tidal stream will be key in supporting

²⁵ P. Kerr et al. (2021) – Implementing Radical Innovation in Renewable Energy Experience Curves. *Energies*, 14(9), 2364. Available [online](#).

²⁶ Supergen (2023) *What is the Optimal Balance of Development and Deployment Policy Support Mechanisms for Wave and Tidal Power?*

²⁷ Frost (2022) *Quantifying the benefits of tidal stream energy to the wider UK energy system*. Available [online](#).

energy security, a cost-effective transition to net zero that protects households from international gas price shocks.²⁸

The importance of a diverse generation mix was emphasised over a two-day period in 2022. The UK energy system saw a record-breaking day on 2 November as wind generation exceeded 20GW for the first time.

The following day wind generation fell below 2GW with the shortfall covered by interconnection and gas-fired power generation. Energy security in a net zero world requires a diverse energy generation portfolio, so when the wind isn't blowing, or the sun isn't shining the shortfall can be addressed by renewable and low-carbon options rather than fossil fuels.

Research by the University of Edinburgh through Project EVOLVE has found that deployment of just under 13GW of marine energy will reduce annual dispatch cost from £13.54bn to £12.51bn. This is an annual saving of over £1bn for UK households. This cost reduction comes from a higher dispatch of renewable energy – by up to 27 TWh (+6%), and thus a lower requirement for expensive peaking generation – by as much as 24 TWh (-16%) when wave and tidal generation are part of the electricity mix, compared with a scenario without marine energy generation.²⁹

In addition to this system benefit, both tidal stream and wave energy will be cheaper than new nuclear at 1GW of deployment.³⁰ However, these technologies will not be the cheapest to deploy in the short term.

To play an active role emerging technologies require a route to market. This is what the CfD mechanism being split into pots, with ringfence, provides. The Government's focus in reshaping the mechanism to support delivery of broader net zero ambitions should not lose sight that existing technologies are already strongly aligned and delivering against these aims.

Creating export opportunities.

In addition to the NPF exploring encouraging investment in a range of areas, the Government should consider areas where it may have a strategic advantage internationally and could lead the world. There is significant potential for the Government to position the UK to benefit from a growing marine energy export market that is forecast to be worth up to £76bn by 2050.³¹

Scottish-based companies including Proteus Marine Renewables and Nova Innovation are already exporting goods and services to the global TSE market, with a strong potential to scale up these exports in coming years. The marine energy could emulate the success of the Danish wind energy sector, which built a strong domestic market and supply chain through investment in projects in Denmark in the 1980s and used this as the foundation to export technology and services to the world. By 2003, 90% of Danish wind turbine production was exported, and Danish wind sector exports in 2019 amounted to €9 billion.³²

By identifying where there is potential to create export opportunities the Government will be supporting delivery of the goals it sets out in its other NPFs.

²⁸ D. Pudjianto, G. Strbac (2022) *Role and Value of Tidal Stream Generation in the Future UK Energy Mix*.

²⁹ SuperGen (2023) *What are the UK power system benefits from deployments of wave and tidal stream generation?* Available [online](#).

³⁰ Catapult (2018) *Ibid*.

³¹ ORE Catapult (2018) *Tidal Stream and Wave Energy Cost Reduction and Industrial Benefit*. Available [online](#).

³² State of Green (2020) *Danish exports of green technology increases by billions in 2019*. Available [online](#).

10. Is valuing non-price factors the right approach to address the specific issues identified related to system flexibility, operability and locational signals, and could there be any unintended consequences or better ways to address these issues through the CfD scheme or other policy instruments?

The Government is right in identifying that factors outside of price need to be valued for the UK to have a successful transition to net zero. LCOE is a blunt measure for judging which renewables to support which has led to an uneven energy generation portfolio. A systemwide and long-term view of what the UK needs do to secure a cost-effective net zero system is required. This could follow the “enhanced levelized cost of energy” methodology originally devised by Frontier Economics and presented by BEIS in the report *Electricity Generation Costs 2020*.³³

As outlined in response to Question 1, predictability is currently not valued in the UK energy system. The NPF consultation is an opportune moment to address this oversight.

11. Are there any other issues identified in the REMA case for change that could be addressed through non-price factors?

Reform of the capacity market to enable a lower cost, low carbon, system will require a mixture of technologies that address the intermittency challenge currently facing a renewables-led future.

A non-price factor that could play into this consideration would be a specific measure to upweight predictability of any proposed project technology. This could equally be administered by the continued use to pots and technology minima, or separate bi-lateral agreements.

12. What financial value would need to be attributed to the potential factors outlined above to incentivise ambitious behaviour for each topic?

It is unclear at this stage how this value could be determined. The short consultation window for this consultation has limited developers’ ability to perform quantitative assessments. A further complicating factor is the fact that the cost of meeting NPF will differ across projects. This uncertainty heightens the risk of unintended auction outcomes.

³³ BEIS (2022) *Electricity Generation Costs 2020*

13. Are there alternative ways of measuring and monitoring the non-price factors than the examples outlined in this Call for Evidence. The government would also be interested in your views on whether there are any factors where a more qualitative method of assessment would be more appropriate?

We believe that the use of NPFs that require qualitative assessment should be excluded as it will be difficult to score qualitative outcomes objectively across projects. Self-reporting which is then audited by an independent party would be the best approach as individual monitoring meetings with each successful project would be very resource intensive. This would be akin to the assessment and reporting that is provided to Low Carbon Contracts Company at present through the CfD. Purchasing imported goods manufactured overseas from a UK sales office should not be included as UK capex, so suitable and auditable rules would need to be in place to ensure the UK truly captures the industrial benefits intended from this policy.

14. How we could measure non-price factors to value system flexibility, operability, and location?

As noted, marine renewables provide a distinct service to the energy system that could be valued within the CfD or via other mechanisms. Accurately measuring and valuing this service will be key to the UK's fair and cost-effective transition to net zero. Identifying the right means of measurement will require further and longer consultation with industry and actors working in renewables.

15. Of the models for implementing non-price factors (top-up, bid re-ranking or valuation formula), are some likely to be more effective for certain non-price factors than others?

The MEC supports the top-up model for rewarding NPFs. The effectiveness of all the models in rewarding NPFs will depend on the level of reward that is offered. We are concerned that this will add a layer of complexity and uncertainty around investment in UK infrastructure at a critical juncture in its net zero journey.

16. Are the compliance and penalty options for non-delivery appropriate and proportional, and whether other alternatives could be considered?

The MEC agrees there should be penalties against non-delivery for projects that have been awarded CfD contracts and are not delivering against NPF commitments. This penalty should be balanced and the Government responsive to external factors that might make compliance difficult. This could include SMEs or third parties failing to deliver for a project developer (for a range of reasons outside of the project developer's control), inflationary pressures, or other factors.

Currently, the £250k penalty for being up to 75% short of local content targets are not appropriate, especially given the size and scale of the CfD projects and the developers involved. Current targets are a fraction of what the UK should be capturing and a fraction of that the UK could secure from tidal stream energy.

A linear methodology to "Top-up" payments, whether for CfD or alternative price mechanism, would allow a clear measure to "adjust" down prices awarded where delivery was not in line with targets.

To measure this compliance, it is favourable to set simple and suitable NPFs, which in turn favours a simple NPF of assessing UK CAPEX of a project, recognising the CAPEX serves as a suitable proxy for other proposed NPFs and associated benefit to the UK economy.

The Government should take a proportionate approach to penalising non-delivery, that reflects externalities, whilst being fair to other bids that may have had a better approach to delivering NPF aims. The difficulty in striking this balance should provide further thought as to whether the CfD mechanism is the right instrument to realise broader ambitions for the UK's net zero transition, and whether introducing other funding mechanisms alongside the CfD would be more effective at delivering aims.

17. When would be the best moment to introduce non-price factors in the CfD process and is the government's initial suggestion (up to 2 years in advance) appropriate?

The introduction of NPFs within the CfD mechanism should give market participants ample time to prepare. The consultation document suggests these could be published two years in advance. Whether this is an appropriate amount of time is dependent on the scale of the change proposed and the NPFs that are being pursued.

The principle of allowing market participants time to adjust and prepare should be applied to the CfD more generally. For example, the TSE ringfence, and its continuation in AR5, is welcome. However, the sector has no certainty if the ringfence will be in place for allocation rounds beyond AR5. Advanced sight of budgets and ringfenced support would be a powerful means of supporting investor confidence and creating an environment that enables emerging technologies to travel down the cost reduction curve.

As a starting point, it is suggested that the draft CfD budget be published for three plus years in advance at the AR6 draft budget notice.