

## Capacity Market: Improving delivery assurance and early action to align with a net-zero call for evidence

The Association for Renewable Energy & Clean Technology (REA) is pleased to submit this response to the above consultation. The REA represents a wide variety of organisations, including generators, project developers, fuel and power suppliers, investors, equipment producers and service providers. Members range in size from major multinationals to sole traders. There are over 500 corporate members of the REA, making it the largest renewable energy trade association in the UK.

### **Question 1 Could 'low carbon capacity in the context of the Capacity Market be defined in terms of an emissions limit? If so, what should form the basis of this limit – for example, would it be better to base a limit on carbon intensity or overall annual emissions, and what types of capacity should be captured by this emissions limit?**

The REA support the use of a carbon intensity threshold to prioritise clean and renewable technologies. Carbon intensity should be considered against Life Cycle Assessments of a plant, considering emissions in their entirety, not just emissions associated with generation. As such, BEIS should consider how total annual emissions could be used. Existing emission accounting methodologies, based on internationally agreed approaches, as set out by the IPCC, could potentially be used to calculate lifetime emissions, with contract terms then used to reward low carbon technologies.

A carbon threshold that accounts for both embodied carbon and then for carbon per unit of energy produced, could then be used to determine contract terms. Contract length and/or contract price could have a direct linear relationship to carbon intensity, with the most carbon-intensive CMUs having the shortest or lowest priced contracts. This would still allow for a range of capacity to come forward while rewarding the benefits of low carbon CMUs and restricting support from going to already established, and in some cases merchant, fossil fuel generation sites.

### **Question 2: Are there alternative approaches to defining low carbon capacity in the context of the Capacity Market? Please provide justifications.**

Overall definitions within the capacity market should align with internationally accepted taxonomy and other UK policy around the definitions of lower carbon capacity, based on well-established greenhouse gas inventories as set out by the IPCC.

### **Question 3 What are your views on the benefits or challenges of linking future long-term Capacity Market agreements to a new carbon emissions limit? Do you have any suggestions regarding an appropriate approach to setting such an emissions limit, and how could we best account for 'lower' rather than 'low' carbon technologies in determining eligibility for multi-year agreements?**

The REA Supports the linking of long-term Capacity market agreements to emission limits. This relationship could be linear. The highest carbon-intensive form of capacity would receive 50% of the contract length of the lowest carbon CMUs. This would both reward 'lower' forms of carbon-intensive capacity, while also not allowing high carbon CMUs contracts for new builds.

**Question 4. Is it necessary and appropriate for carbon-intensive generation to continue to access shorter multi-year agreements, until such a time as low carbon dispatchable generation is more widely available?**

The REA recognise that Energy security is a priority for the capacity market and that, in the immediate term, some carbon-intensive generation may be required. However, the capacity market should not be used to see the delivery of new-build fossil generation sites that would lock in stranded assets as the energy system decarbonises in line with the net-zero 2050 target. As such, multi-year agreements, and T-4 auctions, should be ring-fenced for low carbon new builds and not be awarded above a certain emission threshold. By comparison, T-1 could be awarded to refurbishment sites, where existing carbon-intensive capacity can play an immediate energy security role. However, such high-carbon emissions refurbishment sites should not be allowed to bid in a T-4 auction. We would also support shorter multi-year agreements to be given to those sites with a clear carbon reduction plan in place to be low carbon within a suitable timeframe.

This arrangement should have a clear timetable for review to determine when there is enough low carbon generation available to stop providing contracts to fossil generation at all, recognising that this will need to happen by the early 2030s if to remain aligned to the CCC carbon budgets, which require a net-zero electricity grid by 2035.

**Question 5 Would you expect these suggested changes to agreement lengths to affect your decision to participate in the Capacity Market, your bidding behaviour, or the costs of and access to finance? If so, how? Can you suggest any alternative approaches to ensuring agreement lengths offered in the Capacity Market are consistent with the delivery of net-zero targets?**

Limiting access to multi-year agreements to low carbon capacity will encourage more renewable and clean technology capacity to come forward and should disincentivise fossil fuel new builds that are likely to become stranded assets as the grid decarbonises.

It should also increase access to finance if delivery milestones and lead times are appropriately aligned with the build-out of low carbon capacity. For example, the biggest constraint on build times tends to be grid connections themselves, a factor that is out of the developers' control and up to ESO or DNO. As such, allowable lead times and contract lengths should be suitably flexible around aspects that the developer cannot influence. This would help to de-risk a project further, ensuring that it is only controllable risks that need to be managed, enabling further access to finance.

BEIS may also wish to consider whether 'T-Unlimited' auctions may be appropriate to bring forward innovative low carbon capacity, no matter the time frame for delivery. This would recognise the difficulty of unknown lead times, or aspects outside of the developer control, for new technology projects.

**Question 6 Is it still appropriate to maintain the link between capital expenditure thresholds and multi-year agreements? If not, what other criteria could we consider using to assess eligibility for multi-year agreements (other than the new lower emissions limit discussed in section 2.3.2.1)?**

Linkages between multi-year contracts and capital expenditure could be maintained with the additional caveat that the generation must also meet a low carbon threshold. High capital expenditure on fossil fuel capacity, would suggest a new build site which would not be aligned with keeping the UK on track with its Carbon Budgets. However, different types of low carbon capacity will also have different levels of capital expenditure, with high expenditure sites likely to align with long build times. However, the emission thresholds should be the primary criteria for access to long multi-year contracts.

**Question 7 Should we revise the applicable capital expenditure thresholds? If so, what data could we base them on, and do we still need to have two different thresholds? Should low carbon DSR be able to access shorter multi-year agreements on the basis of emissions limits rather than capital expenditure thresholds?**

We believe it would be beneficial to revisit capital expenditure thresholds and for them to be appropriate to specific technologies. However, as mentioned, emissions limits should become the defining criteria for access to multi-year agreements. As such it is appropriate that low carbon DSR can access multi-year agreements based on emission limits rather than expenditure.

Through the development of the Net Zero Innovation Portfolio competitions, BEIS will now be receiving a significant amount of data related to different technologies, their costs, and their build-out times. This data could form part of the reassessment of appropriate thresholds for different technologies. We would recommend BEIS commission analysis of costs based on competition submissions to develop indicative thresholds. These thresholds could then be further consulted with the industry to check their accuracy and refine them against real-world examples.

**Question 8 Should we review the 77 month window for new builds?**

Yes, factors out of the developer's control should be accounted for, rather than stipulating an artificial 77-month window. As mentioned, aspects like grid connection can be a significant limiting factor on lead times and could affect time frames for capital expenditure. It is appropriate that a more flexible milestone arrangement, between auction result day and a start of a realistic delivery year, align with project realities and those aspects that are actually within the control of the developer.

**Question 9 What are the benefits of maintaining the Extended Years Criteria?**

It should be possible for associated combustions installation and efficiency standards to be confirmed through other means, such as a sites Environmental Permit or stipulated efficiency requirements. This does not necessarily require the Extended Years Criteria to be in place. However, such standards must be maintained through an identified process and requirements.

**Question 10 What are your views on the introduction of a declared later delivery year as a way of addressing the challenges experienced by projects with long build times seeking to enter the Capacity Market? Would this affect your decision to participate in the Capacity Market, and if so, how? Are there other approaches we could take to remove barriers to participation for technologies and projects with long build times?**

The introduction of declared later delivery years would be a very welcome development and encourage more innovative low carbon CMUs to enter the auction, especially regarding longer duration energy storage. However, we note again, that one of the biggest factors affecting lead

times is the securing of grid connections, which are out of the developer's control. This will likely remain an unknown even within applications of extended timeframes. This needs to be recognised within contract arrangements and be suitably flexible so that sites are not penalised for such factors.

BEIS may also wish to consider whether 'T-Unlimited' auctions may be appropriate to bring forward innovative low carbon capacity, no matter the time frame for delivery. This would recognise the difficulty of unknown lead times, or aspects outside of the developer control, for new technology projects.

**Question 11 Do you agree with our suggested approach to determining and verifying eligibility for a declared later delivery year? Are there other approaches we could consider?**

The REA agree with the need for robust requirements around verifying the need for later delivery years, however, these requirements will need to be consulted on separately to ensure they are proportionate. We raise concern that the consultation refers to relying on delivery timeframes for "other comparable projects", for many innovative storage projects this may not be appropriate given the nascent nature of the market. Furthermore, factors outside of the developer's control may have the largest impact on delivery times. Consideration of how to demonstrate realistic delivery timeframes through independent technical analysis and reports should be considered sufficient for verifying later delivery years.

The REA also suggest that consideration around new build PSH and its ability to potentially benefit from a cap and floor arrangement, should not restrict such projects from then only being able to get one-year capacity market agreements. The reasons BEIS are proposing an alignment with how interconnectors and PSH are treated is not clear. The current rules for interconnectors relate to the characteristics of direct cross-border participation, which do not apply to new build PSH. As such, we would suggest that new build PSH should be able to get both a cap and floor scheme and access to multi-year capacity market agreements, as both will ultimately contribute to securing reliable revenue streams that will bring the costs of such projects down.

**Question 12 How can we best mitigate any security of supply risks arising from this approach? Can you identify any additional risks and/or disbenefits related to the introduction of a declared later delivery year?**

Regular auctions, which deliver a variety of both long term and shorter contracts will help mitigate security of supply issues, providing both immediate and longer terms CMUs to be developed. By ring-fencing longer-term agreements for new build low carbon CMUs, through an emissions threshold, future energy security is assured to be in line with net-zero goals. At the same time, shorter-term delivery can be focused on the refurbishment of existing capacity also delivering energy security today.

**Question 13 What are your views on the benefits and challenges of introducing an auction design splitting auctions between new build and refurbishing low carbon capacity and existing capacity? Would this affect your decision to participate in the Capacity Market or your bidding behaviour, and if so, how?**

Split auctions would be a welcome development where beneficial contract characteristics are provided to the delivery of low carbon CMUs. Ring-fencing longer-term contracts for new build low carbon CMUs, while still allowing refurbished sites to gain from shorter-term contracts,

create a mechanism that both delivers immediate energy security and developers low carbon capacity for the future.

A split auction could be integrated with the carbon intensity thresholds and calculations raised in Q1 and 2. The lowest carbon intensity over the lifetime of the asset should be prioritised.

**Question 14 What are your views on the potential split auction designs considered in sections 2.5.2 and 2.5.3? Are there alternative designs we should consider? And what approach could we take to setting targets for a separate low carbon auction?**

The REA support low carbon auctions having priority over higher carbon-based assets. Overall, we support the design of multiple auctions, which would provide low carbon projects several opportunities to secure contracts, as well as BEIS being able to design separate auctions to deliver specific desirable outcomes. While efficient, we suggest that having multiple clearing prices within a single auction may create a more complicated mechanism that is less able to send clear market signals and could ultimately disadvantage smaller entrants in the market less able to compete.

**Question 15 What are your views on expanding the scope of the Price Taker Threshold to potentially make it a price cap for Price Taker Capacity? Would this impact bidding behaviour? What changes to the Price Maker Memorandum might be necessary to ensure any changes to the Price Taker Threshold would be effective?**

The REA generally support the idea of seeing low carbon capacity compete in a separate auction, or with an alternative clearing price, and a price cap only applied at the Price Taker Threshold to existing capacity in the primary T-4 auction. However, it would be good to see government-commissioned modelling of the impact of this change, to see if it delivers the level of market signal desired and ensures that the only new build CMUs incentivised through the auction is low carbon.

**Question 16 What are your views on the potential benefits or challenges of amending the Net Welfare Algorithm to calculate to next lowest bid, rather than by the round floor price? Would this have an impact on bidding behaviour?**

At this stage, it is difficult to determine how this would affect bidding behaviours. The removal of the confidence provided by the round price floor could result in higher bids as participants price in greater risk. As such, this may not result in significantly cheaper clearing prices. Greater modelling of the impact of this change is needed before it is implemented.

**Question 17 How might the changes to auction design considered in section 2.5 interact with other design possibilities explored in Chapter Two concerning agreement lengths (2.3) and projects with long build times (2.4)?**

Ultimately emission thresholds should be considered primary criteria for determining beneficial contract arrangements, enabling new build low carbon CMUs to be brought to market.

**Short Term Considerations: Improving Delivery Assurance**

**Question 18 What are your views on changing the figure used in calculating the penalty rate (for example, from 1/24 to 1/8 or 1/4)? Should the penalty rate be linked to the Value**

**of Lost Load rather than the auction clearing price? Please provide supporting reasons/evidence.**

**Question 19 What are your views on the changes we consider in relation to the annual and monthly penalty caps?**

**Question 20 What are your views on the options we consider for improving the coordination of capacity during a stress event?**

**Question 21 Do you agree with the idea of introducing an additional Satisfactory Performance Day for CMUs that fail to deliver in a stress event?**

**Question 22 What are your views on the options we set out regarding the recovery of unpaid penalties?**

**Question 23 Would you expect any of these changes to the penalty regime to affect your decision to participate in the Capacity Market, your bidding behaviour, or the costs of and access to finance, and, if so, how?**

**Question 24 What are your views on the benefits and challenges of the alternative model for a penalty regime set out in section 3.1.5? Are there other models we should consider?**

The REA are supportive of any revised penalty regime having appropriate tolerance thresholds applied so that non-delivery of capacity within a pre-determined range of an obligation would not result in a loss of payments being triggered. Equally, factors out of the CMUs operator control should also be considered when applying penalties, with no (or reduced) penalties being applied if the CMU is subject to a constraint (such as on the grid) that they could not correct and stops the delivery of their capacity.

**Question 25 What are your views on appropriate testing arrangements for wind and solar CMUs, distribution connected CMUs, and co-located CMUs?**

A separate threshold for measuring wind and solar CMUs is welcomed, as this reduces a barrier for entry for these assets. The REA also welcome intentions for industry involvement with the setting of a threshold value, as this is likely to vary depending on a range of factors, some of which may be site-specific. Hence careful consideration will be needed to ensure the threshold is effective.

**Question 26 Which is your preferred option of those proposed in section 3.2.5 relating to the timing of the connection capacity test? Are there alternative approaches we could consider?**

**Question 27 Would it be beneficial for us to enable a third party (such as the Delivery Body) to re-auction capacity obligations in respect of CMUs that have been terminated during the delivery year, or between a capacity auction and the start of the relevant delivery year? If so, what are your views on the principles for such an arrangement (set out in section 3.3.2), and do you have any commercial considerations and/or concerns about the use of a third-party facilitator?**

The REA support the development of a third party being able to re-auction capacity obligations in respect of the CMUs that have been terminated during the delivery year. In terms of principles, we believe that the emission threshold should play a more significant role, with preference

always being given to low carbon capacity, rather than just being a determining factor when two transferees submit the same priced bid for the same proposition of capacity.

**Question 28 In your view, do the current de-rating methodologies remain appropriate and reflect a CMU's risk of no-delivery? If not, what alternative methodology could be applied and why? Please submit any evidence in support of your view.**

The REA support de-rating factors being reviewed, especially given the fact that renewable and clean technologies continue to evolve and new technologies brought to market, meaning that historic performance and data is a poor indicator of future performance.

However, within the time limit of this broad call for evidence, it has not been possible for us to fully review all possible alternative approaches to get a firm position on a way forward. We would welcome the opportunity to see this issue properly consulted with members, via the NGENSO, so that the issues can be explored in detail with the industry to find the most appropriate methodology.

### **Long Term Considerations: Capacity Market Ten-year Review and Future Market Design**

**Question 29 Do you have initial views based on your experience on the Capacity Market's performance since its implementation that we should consider?**

Many of the most prominent issues concerning the capacity market have already been examined as part of this call for evidence, and we especially welcome moves to make the capacity market better aligned with the UK's carbon budgets and decarbonisation agenda. Low carbon CMUs should be prioritised in future auctions.

Further specific concerns include:

- As currently designed, the CM does not incentivise flexibility or consider other system needs that longer-duration storage can address (e.g. ancillary services). This should be examined so that sufficient revenues are delivered so that capital-intensive longer-duration energy storage projects can be made bankable for investors.
- The current CM design does not encourage the co-location of renewables with energy storage. This should be promoted through the CM mechanism as an effective way to deliver low carbon CMUs.
- As recognised within the consultation, the current CM isn't suitable for new build technologies with a construction time of more than four years (T-4). This needs to be reviewed through more flexible contract arrangements, such as 'T-Unlimited' auctions.
- Current arrangements do not make suitable allowances for lead time constraints that are outside of the developer's control, in particular securing grid connections which can take many years through no fault of the developer.

**Question 30 What are your initial views on the Capacity Market as a continuing mechanism to address system adequacy? Is there a need for continued market intervention by the government to address electricity security? And should the Capacity Market (or alternative electricity security mechanism) also address wider system services such as flexibility and stability?**

The REA see an enduring role for the CM in helping to address energy security, however, such efforts must also be aligned to the UK's carbon budgets and net-zero ambitions. We note that

the capacity market does also need to recognise a wide range of flexibility services that can be offered by renewable and clean energy technologies. The larger role for flexibility, including distributed storage, needs central coordination so that demand is met, and consumer interests are the priority.

**Question 31 Are there alternatives to the Capacity Market that may meet our current or future electricity security needs better, that we should consider? Please provide evidence to support your views.**

All the identified reforms to the CM will be beneficial, but none will provide a route to market strong enough by themselves to deliver longer duration energy storage projects and make them financeable, as they do not ultimately resolve the market-wide issue of revenue certainty. The capacity market is a small, but important, component of the potential revenue stack required for a bankable project, meaning that reforms to address wholesale market revenues and ancillary services are still needed.

As such, the introduction of a dedicated support mechanism for longer duration energy storage is required, in addition to the reforms identified within the call for evidence. The REA support the development of an income floor to see such projects delivered.

**Question 32 Should we continue to enable cross-border participation in the Capacity Market? If not, why not? In the absence of cross-border participation, how should target capacity calculations be altered to reflect the contribution of cross-border flows to the security of supply?**

*Question 32 and 33 are answered together*

**Question 33 If the CM continues to enable cross-border participation, what should be the preferred approach to cross-border flows – enabling direct participation of foreign generation, or continue with the existing indirect cross-border participation model (via interconnectors)? Please provide evidence to support your views**

While the REA recognises the role of enabling cross-border participation via interconnectors, we reiterate that the focus of the CM should be on developing domestic low carbon capacity, especially storage. Since the departure of the UK from the EU, the importance of domestic capacity has become yet starker. Our change in relationship with Europe means that the UK has become an export market for EU power generation, as opposed to just contributing to domestic EU market demand. Many EU markets can expect to also be dependent on cross-boarder trading in moments of grid stress and will likely take priority for energy supply over UK demand. While continuing to value the role interconnectors can play, it remains important that domestic UK energy policy is not overly reliant on them for energy security, by ensuring a high level of low carbon domestic CMUs.

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