

Electricity Security and Market Evolution
Department for Energy Security and Net Zero
1 Victoria Street
London SW1H 0ET
Delivered by email

03 March 2023

To whom it may concern,

Consultation Response: Capacity Market 2023

Scottish Renewables is the voice of Scotland's renewable energy industry. Our vision is for Scotland leading the world in renewable energy. We work to grow Scotland's renewable energy sector and sustain its position at the forefront of the global clean energy industry. We represent over 330 organisations that deliver investment, jobs, social benefits and reduce the carbon emissions which cause climate change.

Our members work across all renewable energy technologies, in Scotland, the UK, Europe and around the world. In representing them, we aim to lead and inform the debate on how the growth of renewable energy can help sustainably heat and power Scotland's homes and businesses.

We welcome that the Department for Energy Security and Net Zero is examining the need for improvements to the Capacity Market (CM), ensuring security of supply is maintained while achieving decarbonisation at least cost. By 2035 electricity production must be achieved without fossil fuel generation and vast amounts of new low-carbon flexibility resources will have to replace flexible fossil plant. The BEIS 2021 Smart Systems and Flexibility Plan proposes that 30GW of flexible capacity will be required by 2030 to meet current net zero pathways, and suggests that some £10 billion per annum may be saved by 2050 by the introduction of flexible technologies. Our members are currently developing these technologies, including both short and long-duration energy storage.

We recognise that the current consultation seeks to try and align the CM with Net Zero, largely by enabling access for potential abated fossil fuel generation. However, we consider that the proposed design has the effect of restricting large scale, long duration energy storage (LLES) Pumped Storage Hydro projects from participating. Our Pumped Storage Hydro members are currently developing over 7GW of Pumped Storage Hydro projects in the UK that, alongside other low carbon storage technologies, can make a major contribution to providing flexibility needed to enable an affordable, secure Net Zero energy system.¹ The de facto exclusion of these Pumped Storage Hydro projects from the CM means that the policy aim of a technology-neutral capacity market is not being realised.

Our responses to the individual consultation sections are summarised below and addressed in more detail in the attached annex.

Security of supply - we agree in principle that the Satisfactory Performance Days (SPD) process should be strengthened, but we don't support introducing the penalty of a termination event for failing to pass the first SPD window. We believe this could both jeopardise security of supply over the proceeding winter months and undermine liquidity in T-4 auctions.

Aligning the CM with Net Zero – we agree that the CM should seek to enable the transition to Net Zero. We welcome the questions in this consultation that seek to understand how unbated gas CMUs plan to decarbonise. This evidence should inform decisions around the timings of introducing a new emissions limit and how the Government may either reactively and/or pre-emptively procure replacement capacity as high carbon capacity exits or retrofits.

We consider that this must also include the security of supply and decarbonisation benefits that can be delivered by Pumped Storage Hydro. While the consultation suggests that a separate mechanism e.g., cap and floor, will be developed to enable LLES development, the form and timescale of such a mechanism is uncertain and

¹ In our [response](#) to BEIS' 2021 call for evidence on facilitating the deployment of large-scale and long-duration electricity storage we set out in detail the system benefits Pumped Storage Hydro project can deliver.

therefore investment in LLES will be chilled until an investable mechanism is introduced.

The proposals in the CM to exclude projects with long construction periods, and to make CM revenues available for unabated fossil fuel technologies until at least 2034 serve to create market barriers which exclude Pumped Storage Hydro projects from the CM. Even if a LLES cap and floor mechanism is introduced, Pumped Storage Hydro will be still be at a disadvantage to other competing technologies with access to the CM (such as interconnectors, batteries, hydrogen, etc).

Additional improvements to the CM - we agree with the proposals in this area to improve the efficiency of the CM process and reduce the administrative burden. Whilst it is concerning that such a process does not already exist, we support the phased introduction of independent verification of Fossil Fuel Emissions Declarations to ensure security of supply requirements are met in the 2023 auction.

We trust these comments are helpful and would be pleased to discuss further and engage as needed to help quickly develop the detail of new CM and other regulatory arrangements.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Andrew MacNish Porter', with a long horizontal flourish extending to the right.

Andrew MacNish Porter

Policy Manager – Economics and Markets

Scottish Renewables

Annex – Detailed answers to questions

Question on Chapter 2 – Strengthening Security of Supply

- 1. Do you agree with the proposed changes to the SPD process? Are the proposed changes likely to cause any unintended consequences?*

We agree that the Satisfactory Performance Days (SPD) process should be strengthened to ensure that delivery can be assured. However, we do not believe that a termination notice should be issued for failing to pass the first SPD window as this could lead to unintended consequences for security of supply if capacity is then no longer available for the peak winter period. We agree that payments should be suspended in this case, but we believe introducing the additional risk of termination is excessive and could impact any large-scale plant on an unplanned extended outage.

We also believe that an unintended consequence of the increased risk of termination could be reduced participation in the T-4 auctions, as Capacity Providers might choose to delay entry until the T-1 auction or not participate in the CM at all. This could reduce liquidity in the T-4 auctions and increase the costs to consumers.

- 2. Are there any barriers faced by storage CMUs in meeting the CM's performance and duration testing requirements, and if so, can you suggest any potential solutions? Please provide evidence to support your response.*

We welcome the inclusion of these questions within the consultation. The test would not cause issue to assets such as Pumped Storage Hydro which can provide long-term firm physical capacity, but it could present barriers to BESS facilities in the future. We support the government's proposal within the consultation to adjust the EPT to be based upon a CMU's net Capacity Obligation rather than the Adjusted Connection Capacity, we consider that this is a practical and workable solution. The test could still be carried out to demonstrate the required duration specified in the capacity agreement, based on the de-rated capacity thus providing assurance that all CMUs can meet its obligations.

3. Do you agree with the proposed changes to enable Capacity Providers to determine a CMU's connection capacity solely on the basis of TEC, MEC or Average Output? Are there any unintended consequences of taking this approach?

4. Should Capacity Providers be allowed to self-nominate their CMUs' connection capacity, provided the nominated figure is not higher than TEC, MEC or Average Output?

We agree that the use of industry defined TEC, MEC or Average Output is an appropriate way of reflecting total export capacity. In principle, we agree that Capacity Providers should be able to nominate capacity up to this level, recognising that they will subsequently be required to demonstrate the delivery of this capacity throughout the contract term, and substantial penalties for non-delivery may be incurred.

5. Do you agree with the proposed changes to enable mothballed plants which are existing Generating CMUs to return to the CM? Would these changes result in any unintended consequences?

Given the current energy crisis and ongoing importance of security of supply, we agree with the proposed approach to enable mothballed plant to qualify for the CM, but we consider this should be time limited. The perpetuation of payments to mothballed fossil plant may undermine the development of Net Zero storage technologies such as Pumped Storage Hydro. Payments to mothballed plant with sunk capital costs may also have the effect of cannibalising CM payments to encourage investment in new build assets.

6. Do you agree with the proposed changes to the CM's penalty rate? Are any unintended consequences likely to result from this change?

We agree that a strong penalty regime is necessary but it is unclear how strengthening penalties for non-delivery in a system stress event will impact the CM given that, to date, penalties have never been triggered. We consider that strengthening the SDP process as per our response to Question 1 should be sufficient to ensure security of supply during System Stress Events.

7. Do you agree with the proposed changes to the timelines for calculating non-delivery penalties?

We agree with this proposed amendment. It will be important that penalties are accurately calculated.

Questions on Chapter 3 - Aligning the Capacity Market with net zero

8. Do you agree with our proposal to introduce lower emissions limits for new and Refurbishing CMUs from 2035?

9. Do you agree with our proposed changes to the emission limits regime?

10. Are there any further required changes to the emissions limits regime which have not been identified?

Overall, we support the policy to align the capacity market with decarbonisation commitments. However, we do not consider that the proposed approach will be effective. By focusing on the continued use of gas for flexibility, it is undermining the potential for low carbon flexible resources such as Pumped Storage Hydro to participate in this market. Unlike the emerging and potential hydrogen and CCUS technologies, Pumped Storage Hydro is a proven large scale flexible technology. It is ideally suited to deliver security of supply, decarbonisation and low cost flexibility over many decades in the future.

We consider that the government's proposed approach could unduly favour the development of unabated flexible gas plant to address security of supply concerns. The approach will have the effect of perpetuating the CM revenues available to gas peakers instead of providing the revenues to low carbon technologies, including long duration storage resources. Pumped Storage Hydro projects have high capital costs and low ongoing operating costs over very long lifetimes – we suggest that, to meet its stated objectives, the capacity market should also be providing signals to encourage this type of investment.

The consultation suggests that gas peakers will be needed beyond 2035 for security of supply despite the government's commitment to achieve 100% decarbonisation of the power sector by 2035. Our members have over 7GW of low carbon Pumped Storage Hydro in development, much of which could be built by 2030 if the correct market signals are provided. The current CM proposals to continue to support unabated gas directly conflict with the decarbonisation commitment, when a lower cost, low carbon alternative is readily available by 2035.

From a security of supply perspective, the timings and updated emissions limit require careful consideration. However, if emission intensity and annual limits are to be used as a pathway to decarbonisation in the CM, then we suggest that these limits be reduced before 2034. This would provide a market signal to encourage the earlier development of alternative low carbon solutions.

11. Do you have any views or evidence on the impact that the emissions limit proposal may have on investment in transitional pathways, such as hydrogen blending or CCUS retrofit?

Overall, we agree that it will be important to explore transitional pathways for certain technologies. However, if the Capacity Market is used to support such technologies that are unproven and may never happen, then this will distort the market for all other participants. It may lead to a perpetuation of fossil-fuel plant and a failure to support decarbonisation goals.

The maintenance of CM support for gas or coal plant that claims to be transitional will undermine the support available for plant such as Pumped Storage Hydro which is able to contribute fully with the capacity market goals for decarbonisation and security of supply. This approach appears to conflict with the stated policy goal of a technology-neutral capacity market.

It may be more appropriate to support such technologies through innovation grants or other direct subsidies rather than introducing cross subsidies from the capacity market.

12. If you have an unabated gas CMU in the CM, what are your plans for this capacity as the power sector decarbonises? Do you intend to decarbonise your CMU once viable pathways such as the DPA are available?

13. From the perspective of a Capacity Provider, are there any additional barriers to decarbonisation than those mentioned above? Would it be necessary to terminate your CM agreement in order to decarbonise your CMU?

14. How long would it take to retrofit your plant(s) to either CCUS or Hydrogen and when would it be feasible for your plant(s) to come offline to do so? Please provide a breakdown of this where possible.

Overall, we consider that the CM should be flexible enough to allow unabated Capacity Providers to withdraw from the CM mechanism so that they can move onto a separate subsidy support scheme for hydrogen or CCUS, and no longer participate in the CM. This may mean that future CM auctions will need to fill the security of supply gap left by these Capacity Providers while they transition to a new technology, perhaps taking several years.

Low carbon flexibility assets could play an important role in filling this transition gap, and it will be important for the CM not just to consider how the decarbonisation of existing CMUs may be realised, but also how the gap left by their departure may be filled. This may require redesign of the CM process.

15. Do you have any comments on our suggestions of how CMUs could decarbonise or suggestions of your own? If so, please provide details of this.

16. Could secondary trading provide a pathway to the decarbonisation of an existing CMU? Please provide an explanation to your answer.

17. Could reactively procuring capacity provide a pathway for CMUs to decarbonise whilst ensuring security of supply? Please provide an explanation for your answer.

18. Could over-procurement of replacement capacity via the CM enable CMUs to decarbonise whilst ensuring security of supply? Please provide an explanation to your answer.

Long duration storage such as Pumped Storage Hydro assets would be well placed to provide firm low carbon capacity during this transition period, particularly if abated fossil fuel generation does not appear on the required scale.

If Pumped Storage Hydro is to fill the 'lost' capacity gap, then a clear long term price signal will be required with sufficient time for the asset to be constructed to fill the gap. As such, a reactive procurement approach will not give sufficiently early investment signals, and secondary trading is unlikely to give either long term certainty or a sufficiently early investment signal.

Over procurement i.e., giving early investment signals to Pumped Storage Hydro assets, should successfully trigger investment. It is stated that this would add an additional cost to consumers. It is not evident why this should be the case. Pumped Storage Hydro CM contracts would become part of the long-term CM contracted background with subsequent auctions seeking to optimise abated fossil fuel projects as they undertake conversion.

To have a better prospect of bringing forward investment in new flexible capacity, another action that may be taken to help secure the replacement capacity is setting a low T-1 set-aside at the T-4 auction. To have a better prospect of bringing forward investment in new flexible capacity, it would be better to have a higher T-4 target.

Ultimately, given the scale of the challenge to decarbonise and growing need for firm, dispatchable capacity, it seems likely that a policy to deliver such anticipatory investment would provide an overall benefit to customers and society.

19. Do you agree with the proposal to introduce 3-year agreements for low carbon, low capex CMUs? If not, do you have any suggestions for an alternative approach?

20. Are there any potential consequences or risks that you think the government should further consider?

21. Specifically, which low carbon technologies do you expect might benefit from a 3-year agreement with no capex threshold?

We note that the government is seeking to remove barriers to allow DSR CMU's to be eligible for multi-year agreements and do not oppose this proposal. Longer

revenue certainty is highlighted as a key enabler for greater DSR participation in the CM.

We would highlight the policy inconsistency in the CM market design – while government is seeking to enable access to longer revenue certainty to enable DSR participation in the CM, no such action is proposed for long duration storage with long construction times.

22. Do you agree with the proposed changes to the reference cost levels underpinning the CM's 3-year and 15-year Capex Thresholds?

23. Do you have any concerns about the assumptions made regarding the calculation of the revised reference cost levels?

24. Do you foresee any unintended consequences which could result from making this change to the approach for the 3-year and the 15-year Capex Thresholds? Conversely, do you foresee any unintended consequences which could result from not making substantial changes to the level of the 3-year and the 15-year Capex Thresholds?

25. Do you agree with the proposed introduction of a 9-year Capex Threshold for low carbon CMUs? Do you foresee any unintended consequences?

26. Do you agree with the proposed reference cost level underpinning the new 9-year Capex Threshold for low-carbon CMUs? If not, do you have further evidence on alternative reference cost levels?

We support the proposals as set out in the consultation.

Access to multi-year agreements play a critical role in allowing high-CAPEX projects to access finance and should continue to be provided through the CM. We welcome a range of low carbon technologies has now been considered in reference price methodology for the 15-year threshold and believe it appropriate that the threshold has been set at the lower end of the observed CAPEX cost range.

27. Do you agree with the proposed changes to the definition of Total Project Spend to extend the scope of the existing permitted period for Capex in respect of new build

CMUs (i.e. in effect a 77-month period prior to the commencement of their first Delivery Year) to include Refurbishing CMUs? Do you foresee any unintended consequences which could arise from this change?

We agree that applying this window to refurbishment projects is reasonable. However, the 77-month window will need to be reconsidered for projects with longer construction times, such as Pumped Storage Hydro. These projects may take up to 6 years to construct, and it would be more appropriate to design the window on a project specific basis.

28. The government remains open to considering proposals to address challenges faced by projects with long build times. Please provide further evidence or proposals that you feel would address such challenges.

The government does not propose to progress the opening of the CM to projects with longer construction times such as Pumped Storage Hydro. The reasons stated for this are that:

- 1. there is a risk of over-subsidising some technologies and distorting competition in the CM.*

We disagree – excluding new Pumped Storage Hydro projects from the CM will also distort competition. It means that projects with higher lifetime costs, less able to provide firm capacity, and less able to contribute to decarbonisation, will receive revenues from the capacity market that Pumped Storage Hydro is not able to access. This will cannibalise revenues that Pumped Storage Hydro might have been able to receive if it were possible to participate in the CM. It is an inconsistent policy – interconnectors, for example, are able to participate in the CM while also receiving benefits from a cap and floor regulatory regime.

- 2. an alternative mechanism e.g., cap and floor is expected to enable investment in long duration storage by 2024.*

Whilst it is our view that an adapted cap and floor mechanism is the most appropriate mechanism to support the development of LLES technologies, a reformed Capacity Market which better values low carbon flexible assets is also required to adequately reward and incentivise LLES. The intent to develop a mechanism is welcome, but the outcome of this process remains uncertain. We therefore believe both reforms should be pursued as priorities. Importantly, like

interconnectors, LLES projects supported by any future revenue stabilisation mechanism should still be able to access CM agreements as a key revenue stream to ensure these projects are best able to support GB's security of supply.

3. *the government anticipate that very few new build CMUs would be able to take advantage of a declared later Delivery Year*

This is not the case. Our members currently have over 7GW of Pumped Storage Hydro under development, with over 2 GW having planning consents and ready to build. These projects could take advantage of a later Delivery Year declaration.

We suggest that the T-4 auctions should be modified to allow projects with longer construction lead times to participate. Options for how this could be achieved without distorting the capacity procured or the clearing price include:

- Running the T-4 auction as normal with the pre-qualified long build time projects held outside the auction. Once the auction has cleared, these projects are then offered a contract at the clearing price to deliver from the later year.
- The long build time projects participate directly in the auction but with their capacity treated as a nominal capacity (e.g., sub 1MW) to ensure that the unit can take part in price discovery but not undermine security of supply in the T-4 delivery year.

4. *there are significant implementation and operational issues which would add additional complexity to all aspects of the CM's operational processes.*

It is unclear what these process restrictions are, and why they are causing a delay to implementation of this policy. This does not appear to be a strong reason for not amending the process to incentivise projects with longer construction times.

5. *the REMA consultation will consider this issue.*

The REMA consultation is looking at a range of issues to ensure electricity markets are fit for purpose in 2035. Policy development and introduction is expected to take several years. Projects with long-build times need certainty now if they are to be available for 2035.

Questions on Chapter 4 - Additional improvements to the Capacity Market

29. Do you agree with the proposed clarification to Rule 5.9.7? Does the proposed clarification have any unintended consequences?

We agree with this approach to clarify CM rules.

30. Do you agree with the proposed amendment? Does the proposed amendment have any unintended consequences?

We agree with this approach which increases certainty about the annual CM process.

31. Do you agree with the proposed change to the CM Regulations to enable Capacity Providers with relevant CMUs to use the CM to CfD transfer route in practice? Do you foresee any unintended consequences of making this change?

32. Do you think that the amended transfer route should continue to be available to new CM agreements in the future, or should it be restricted to existing agreements?

We consider that the principle of preventing projects from participating in both schemes should remain in place. If transfer arrangements continue to be available, the mechanics of the transfer process should be practical and fair and be based on commercial decisions of the Capacity Providers.

33. Do you agree with the proposed amendment? Does the proposed amendment have any unintended consequences?

This approach appears to be more administratively efficient without jeopardising the delivery requirements.

34. Do you have any comments or concerns regarding our proposed phased implementation of the requirement for Fossil Fuel Emissions Declarations to be independently verified?

It is concerning that measures to ensure independent verification of fossil fuel components have not yet been implemented, and the CM process is not able to provide assurance that it is on a pathway to decarbonisation and achievement of Net Zero targets. We consider that emissions verification will be critical to enforce measures to limit future fossil fuel participation in the CM.

However, we agree that this is a pragmatic approach aimed at ensuring security of supply requirements can be met in the 2023 auction.

Question on Chapter 5 – Assessment of impacts

35. Do you agree with the consideration of impacts in section 5? Are there any additional impacts which the government has not considered? Please provide supporting evidence where possible.

We note that the consultation focuses on a number of specific policy changes. We agree that the proposals to strengthen performance incentives and to enable greater access for DSR technologies have considered both the positive and negative impacts and have reached a reasonable conclusion.

However, we do not agree that proposals for aligning capacity market agreements with decarbonisation commitments and capital expenditure thresholds have fully considered the potential impacts.

As detailed earlier in our response, we consider that the benefits of allowing Pumped Storage Hydro to participate in capacity markets have not been captured in the analysis. Pumped Storage Hydro has high upfront costs, long construction times, but it is a proven technology that can deliver firm capacity for decades without degradation, offering lower lifetime costs than other technologies. The CM proposals appear to discriminate in favour of other technologies without considering these benefits and their impact.