The voice of the energy industry

Energy UK response to Capacity Market: Call for evidence on Hydrogen to Power and Interconnectors

Open Call for Evidence

November 2025

About Energy UK

Energy UK is the trade association for the energy industry, representing companies investing billions of pounds to secure our country's current and future energy needs.

From growing start-ups to major electricity generators, grid and infrastructure developers and energy suppliers, our members are driving change across power, heat, transport and flexibility.

We provide a collective voice for the sector working with governments, regulators, charities and other organisations to provide crucial insight that shapes policy, offers solutions and promotes best practice.

Our broad view across the whole system supports evidence-based positions which are not tied to particular technologies, and are focused on delivering strategic benefits for people, businesses and the economy.

We champion initiatives such as our Vulnerability Commitment, which pushes suppliers to go beyond regulation to support customers with additional needs, and TIDE, the industry's drive for greater inclusion and diversity. Through our Young Energy Professionals Forum, we support the development of future leaders.

We are equally committed to our team and are proud to be recognised as a 'Gold' Investors in People employer.

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Executive Summary

Energy UK and its members welcome this call for evidence and thank the Department for Energy Security and Net Zero (DESNZ) for the opportunity to comment on potential changes to enable Hydrogen to Power (H2P) participation in the Capacity Market (CM), as well as on the technical adjustment methodology used to determine interconnector de-rating factors. We also confirm that we consent to our response being published.

Energy UK remains committed to supporting the transition to a Net Zero energy system and aligns closely with the Government's Clean Energy Superpower Mission. In that context, we welcome the steps being taken to facilitate the deployment of H2P through the CM. We are also supportive of the introduction of an updated technical adjustment methodology to help ensure that the scheme remains robust and effective for all participants, including for interconnectors.

Energy UK considers that in general Generation Technology Classes and Derating Factors should be set according to the reliability of the combustion technology type, and until there is future evidence, those for H2P should align with those for gas plant.

As stated, Energy UK supports the Government's minded-to position to update the technical adjustment methodology, as it has not been revised to date and there is now a broader set of historic operational data available. This provides a stronger basis for assessing the future performance of interconnectors and should lead to more accurate and robust de-rating factors.

Energy UK would encourage the Government to revisit its minded-to position to exclude high-impact low-probability events and to further consider how these should be reflected in the updated methodology. While acknowledging that such events are unlikely to reoccur, some members noted that omitting them entirely may risk overstating interconnectors' contribution to the CM's security of supply objectives.

Participation of Hydrogen to Power

Question 1: What are your views on Hydrogen to Power combustion plants connected to the wider hydrogen network and with natural gas connections participating in the Capacity Market under the existing gas Generating Technology Classes with the associated de-rating factors?

Energy UK considers that Generating Technology Classes (GTCs) should be differentiated by combustion technology type rather than input fuel or fuel availability. This is currently the case for plant using natural gas as the input fuel and there is no different GTC for plant which burn diesel rather than natural gas.

The CM is designed to deliver security of supply by delivery of electricity during a stress event, so the product being delivered is not differentiated by fuel, rather reliability of delivery is addressed by the de-rating factor (DRF) of the combustion plant. It is not apparent that the reliability of plant fuelled by hydrogen will differ from that fuelled by natural gas, as the technical characteristics of combustion will be similar. Indeed, it is expected that plant capable of burning 100% hydrogen or a blend will also be able to run on natural gas, but we are not convinced such plant should be differentiated by their connection type. In any case the connection arrangements may change over time, with the gas connection being removed in due course. If differentiated GTCs were to be introduced, this would need to be considered adding complexity to the arrangements.

We also agree that the majority of early Hydrogen to Power (H2P) projects will be supported by a dedicated business model rather than the capacity mechanism, so if different reliability were to emerge for hydrogen fuelled plant, this could be addressed later with a negligible impact on security of supply, due to early contracted volumes being small.

Question 2: What are your views on Hydrogen to Power combustion plants connected to the wider hydrogen network and without natural gas connections participating in the Capacity Market under the existing gas Generating Technology Classes with the associated de-rating factors?

Energy UK understands that it may be some time before H2P plants are capable of starting up on 100% hydrogen, so a natural gas connection or supply may be needed for early projects, with the transition to 100% hydrogen running being delivered some time later. Notwithstanding this, the comments below assume 100% hydrogen for start up and running.

In line with our response to Question 1, we do not believe that H2P plant should have a different GTC because of their connection type, whether that is to a natural gas or hydrogen network. The question implies that there would need to be an assessment of the storage / linepack capability of the hydrogen network, but provides no details on what this would entail, nor how it is modified when the network supply / demand

situation changes through the addition or removal of production, offtake and storage. Would this also entail ensuring that a H2P plant has contractual access to 'sufficient' hydrogen? How would 'sufficient' be defined? And would certain levels of storage stock on the network need to be maintained?

These concepts would add considerable complexity to the capacity mechanism framework, when essentially a party participating in the CM Auction is aware of the product they are offering to sell, and would be subject to performance tests.

However, if DESNZ were to decide that fuel availability should be considered, it would likely be necessary to establish different GTCs and DRFs for each hydrogen network or closed loop system, which would need to consider the combustion technology type and establish some kind of methodology to establish the fuel availability considering; storage capacity and stock holding, linepack and other parties' connected to the network. Alternatively, self-nomination of capacity could be considered as that proposed for batteries.

Question 3: What are your views on Hydrogen to Power combustion plants without access to natural gas, but with onsite storage, being categorised as duration limited and therefore participating in the Capacity Market under a Storage Generating Technology Class with the associated de-rating factors?

The document notes that closed loop systems may be less exposed to cross chain risks of being connected to a hydrogen network as the use of hydrogen produced and stored will be under its control. This may be true, but how it impacts delivery of electricity at the time of a stress event will depend on the relativities of hydrogen stored in the closed loop system to that required and the same parameters on the wider hydrogen network with both needing to take into account the ability of production to serve the requirements directly and / or replenish storage.

The market arrangements on the wider network will also be relevant, particularly if risk taking intermediaries or shippers are permitted as they may be able to optimise the use of storage and supply to offtakers.

Energy UK considers that aiming to ensure a level playing field for participants in the capacity mechanism is an important principle. Treating H2P on a closed loop system differently to H2P connected to a network or networks may lead to more or less favourable treatment depending on how duration is determined and demonstrated. Similarly, treating H2P on a closed loop system like a battery system will not be without its complexities due to the potential to replenish the store or use hydrogen production directly during a stress event. A future evolution of the CM Rules could explore differentiation of GTCs and DRFs for closed loop systems, and potentially all technologies by reference to the security of the input fuel supply, duration that can be delivered and wider decarbonisation objectives.

Question 4: If the government was to implement bespoke Generating Technology Class(es) for Hydrogen to Power plants, what factors would need to be considered when developing the de-rating factor? Please consider both combustion plants and fuel cells.

The operating reliability is usually a key input to the DRF, but there is limited history of reliability data for H2P plant. Given that the combustion technology is fundamentally similar to that for natural gas, and the maintenance factors will be the same, it would seem reasonable to start with the same values for DRF by technology. These could be amended in the future once data is available.

For fuel cells, there is even less historical data, and the technology is not like any others in the CM, so setting the DRF will be challenging and may need to be adjusted over time.

Question 5: What wider factors (beyond Generating Technology Class(es) and de-rating factors) need to be considered to enable Hydrogen to Power to participate in the Capacity Market?

Ensuring pre-qualification works, this is a general issue, but it would be unhelpful if H2P plant faced additional challenges.

Question 6: Are there any unintended consequences that could occur from enabling Hydrogen to Power to participate in the Capacity Market?

There could be a distortion within the CM as hydrogen would be the only subsidised fuel participating, whether this is blended or 100%. However, this would support decarbonisation and may not be unintended.

Depending on the connection and supply arrangements, proving runs could put quite a strain on small hydrogen transportation networks with multiple H2P plant and limited storage. This could risk non-delivery of hydrogen supply to other users which may not be acceptable in these circumstances, nor in an actual CM event. A consequence of the market arrangements rather than enabling H2P in the CM would be that supply to H2P plant may be limited if the primary supply is not available, by the risk-taking intermediary rules, not allowing sale to other parties.

Question 7: If you are an operator of an existing gas Capacity Market Unit, are you considering onsite blending of hydrogen and natural gas for power generation? Is the current Capacity Market framework sufficient to enable blending?

With hydrogen production supported by the production business model being sold at the natural gas price, the main consideration would be whether the CM clearing price would be sufficient to cover the capex costs to enable blending. These costs will vary from plant to plant and depending on whether blending is on site or via pipeline supply.

Whether the clearing price is sufficient will depend on many factors.

The main issue it to ensure there are no barriers to participation and that H2P is not disadvantaged compared to other technologies.

Question 8: Would the opportunity to blend hydrogen as part of your fuel mix incentivise you to bring forward new or invest in the lifetime extension of existing unabated gas capacity?

Energy UK members will respond to this individually, but this will be a commercial decision in the wider context of the regulatory and market frameworks.

Question 9: What are your views on how the government should approach Generating Technology Classes for hydrogen and natural gas blended fuel plants, including whether existing Generating Technology Classes are appropriate?

In general, Energy UK considers that the existing GTCs can be applied to H2P. See responses to the questions above.

Question 10: Are there any unintended consequences that could occur from enabling natural gas plants to blend hydrogen in their fuel mix?

Unintended consequences imply something that happens after the event. Commercial, technical and safety issues will be addressed before plant are adapted for blending.

Question 11: What wider factors (beyond Generating Technology Class and de-rating factors) need to be considered to enable hydrogen and natural gas blending for power generation in the Capacity Market?

In simple terms, can the plant accept blended gas and what does it cost to adapt the plant to accept such gas. The gas specification for existing combustion plant does not include hydrogen, so the original equipment manufacturer will need to assess each plant on a case-by-case basis and identify adaptations required, there is a significant cost associated with this. If adaptations are required, these would need to be scheduled into a planned outage.

Operating procedures and safety cases may need to be updated.

We also note here that the arrangements for certification of blended hydrogen are not clear, but burning certificated hydrogen is not recognised by UK ETS, so the reduced emissions are only credited if emissions are measured directly. This limits incentives to buy blended certificated hydrogen for H2P and may give commercial benefits to plant close to blend entry points.

Question 12: Would you expect your plant to require more frequent maintenance / generation outages or incur higher maintenance costs to enable blending of hydrogen and natural gas? If so, could you provide estimated costs?

Energy UK understands that no additional or more expensive maintenance is anticipated for H2P plant.

Technical adjustment of interconnector de-rating factors in the Capacity Market

Question 13: Do you agree that the government should implement an updated technical adjustment methodology? Please provide the rationale behind your view.

Energy UK supports the Government's proposal to implement an updated technical adjustment methodology, given that the currently applied methodology was last reviewed and updated in 2015, when the eligibility of interconnectors to enter the CM was first formalised. This would ensure that the model provides most accurate insight into the future performance of interconnectors, therefore, remaining fit-for-purpose in assessing the expected contribution of each interconnector towards the Great Britain's security of electricity supply.

As outlined in the Call for Evidence, the existing methodology considers the technical parameters of the cables and the converter stations that make up an interconnector to model its expected availability. While this approach was appropriate in previous years, when historic availability data was limited, the situation has now changed. With more operational data available over a longer period, it seems that now could be the right time to review and update the methodology.

In addition, Energy UK agrees with the Government's rationale that updating the technical adjustment methodology presents an opportunity to improve transparency around it, as members have noted that it has historically been difficult to identify how the technical de-rating factors are derived.

Question 14: Do you agree that the government should implement the proposed methodology as detailed in Table 3? If not, please provide reasons why, or alternative approaches that could be considered.

Although the Government notes that the technical adjustment usually represents a very small impact on the final de-rating factors, as highlighted in Question 13, Energy UK welcomes a move towards using real operational data as members agree that this would enhance the accuracy of the assessment.

As noted in section 5.2 of the Call for Evidence, the updated technical adjustment methodology, as recommended by Frontier Economics and LCP Delta, retains the existing approach for interconnectors with limited historic availability data, while ensuring that, where sufficient historic data is available, de-rating factors are determined through more robust analysis.

In addition, the Government should consult on and clearly define what constitutes "major refurbishment" and formalise and publish its assessment process.

Question 15: Are there any unintended consequences to implementing the proposed methodology as detailed in Table 3? If so, please detail these.

Energy UK is not aware of any unintended consequences that the implementation of the proposed methodology could cause.

Question 16: Do you agree that the government should generally exclude high-impact low-probability events from the technical adjustment calculation? Please provide evidence to support your view.

The large majority of Energy UK members do not agree with the Government's minded-to position to exclude high-impact low-probability events from the technical adjustment calculation. While acknowledging the recommendation made by Frontier Economics and LCP Delta that such events fall outside of the reasonable control of the operators and should therefore be excluded, they highlight that the overall deliverability of interconnectors is often shaped by factors beyond operators' control. They, therefore, agree with the concern raised in the Call for Evidence that excluding them could risk overstating the ability of interconnectors to deliver at peak times, ultimately weakening the ability of the CM to ensure security of supply.

In particular, these members disagree that Transmission System Operator instructed reductions in capacity should be considered as high-impact low-probability events and excluded from the methodology calculations. These events are not unique one-off events, with several experienced over the past few years for certain interconnectors. Although another member noted out that such reductions do not necessarily indicate issues with technical reliability, the majority view is that they remain informative of future interconnector behaviour during times of future system stress and should therefore be reflected in the predicted availability and de-rating factors.

Additionally, the majority of members noted that excluding high-impact low-probability events could create an inconsistency in how interconnector availability is treated compared to other technologies, such as renewables and other generating technologies, therefore, undermining fairness across the scheme.

One member, however, noted that the high-impact low-probability events outside of the operator's control should be excluded from the technical adjustment calculation. This member argued that the occurrence of these events does not necessarily indicate a heightened likelihood of recurrence and should not be treated as representative of typical operational performance.

This member also pointed out that including such events could risk distorting the assessment of interconnector reliability and lead to an overly conservative approach. This can result in unnecessary increases in capacity procurement, from higher cost capacity resources and, ultimately, higher costs for consumers.

Energy UK would encourage the Government to clarify the basis on which high-impact low-probability events would be classified, should it proceed with its minded-to position to exclude them, to ensure that doing so does not inadvertently undermine overall security of supply.

Question 17: Please provide views on which, if any, criteria should lead a high-impact low-probability event to be excluded in the technical adjustment calculation? Please provide the rationale behind your feedback.

N/A

Question 18: Are there any unintended consequences to excluding high-impact low-probability events? Please provide evidence to support your view.

As stated under Question 16, excluding high-impact low-probability events could overestimate interconnector de-rating factors and risk under-procurement of capacity, thereby impacting security of supply and value for money. If interconnectors were exempt, other technologies should be treated similarly for consistency.

Question 19: Do you agree that the government should publish a briefing note to detail the methodology behind the technical adjustment? If there are certain aspects of the technical derating process that you think would be helpful to include in this briefing note or in future stakeholder engagement, please provide details of these.

Energy UK agrees that it would be sensible to publish a briefing note specifying the methodology that the Government would use to determine the technical adjustments to the final interconnector de-rating factors, to ensure clarity, consistency and transparency around the process, ultimately demonstrating fairness for all participants.

Question 20: If you have further comments on the wider interconnector de-rating factor process, please provide details.

Energy UK also believes that the EMR Delivery Body's (EMR DB) approach for developing interconnector de-rating factor recommendations requires additional scrutiny.

For instance, the EMR DB's 2025 Electricity Capacity Report presented the findings of the EMR DB's new 'Equivalent Firm Capacity' (EFC) methodology for interconnectors, alongside the 'mean flows approach' generally solely used for interconnector de-rating factors in recent years, using both to inform their 2025 recommendations to the PTE and DESNZ. As noted by the PTE's 2025 Report, the EFC approach the EMR DB has adopted for interconnectors looks at their average contribution rather than the marginal (or incremental) contribution, which may be more appropriate for new build interconnectors.

An incremental EFC approach is used for renewables technologies, which inherently provides lower de-rating factors than the average approach – the Delivery Body calculated this to be 15-20% lower in 2019 for wind. The Government should consider whether an incremental EFC approach would offer a fairer reflection of the value of interconnectors relative to renewables.