

REA Response to BEIS market engagement on Electrolytic Allocation for Hydrogen Business Model and Net Zero Hydrogen Fund

1. If you are responding on behalf of an organisation, please confirm the name and type of organisation you represent?

The Association for Renewable Energy & Clean Technologies (REA), the UK's largest renewables trade association, is pleased to submit this response to the above consultation.

The REA represents industry stakeholders from across the whole renewable energy and bioenergy sectors and includes dedicated member forums focused on green gases including clean hydrogen, biogas and biomethane, biomass heat, biomass power, renewable transport fuels and energy from waste (including advanced conversion technologies). Our members include 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.

The REA has an active Hydrogen Working Group representing several members in this fast-moving area and aimed at advancing the Government hydrogen agenda. The trade association believes that low carbon hydrogen will play a key role in decarbonising the economy especially hard-to-abate sectors where other decarbonisation options such as electrification or bioenergy are not available.

General comments

In principle we support BEIS efforts to streamline the process for allocating the Hydrogen Business Model and the Net Zero Hydrogen Fund for electrolytic hydrogen projects. Integration of the two applications will certainly make this process much more time efficient.

However, it is crucial to understand how BEIS will ensure that the Net Zero Hydrogen Fund (NZHF) for smaller scale projects is protected. In other words, it is paramount that mechanisms are in place to ensure not all budget is taken up by larger plants. If the NZHF money is to be used to stimulate large scale production under strand 3 (5MW plus), then a significant portion of this fund will be taken up by these projects and there may be less support available for smaller scale projects.

In addition, we consider that hydrogen blending into the gas network should be supported in this allocation round and Government should signal their support for blending – both strategic and commercial - ahead of the allocation process and certainly well ahead of FID, as failure to do so may result in some projects not being investable. This is because producers need more certainty on the overall demand for hydrogen before investment decisions can be made and the ability of blending hydrogen into the

network can provide that certainty. See our answer to question 1 for further details on our views on blending.

1. Do you agree with the proposed eligibility criteria for the first 2022 HBM/ NZHF electrolytic allocation round? Yes/ No/ Don't know. If not, please explain why.

Yes.

Electrolytic hydrogen production facilities

We broadly agree with the proposed eligibility criteria, however it is crucial that the next round of allocations is not only restricted to electrolytic projects but is also extended to other low-carbon hydrogen pathways which fall outside the allocation process for CCUS-enabled projects. Such pathways can produce low-carbon hydrogen compliant with the Government Low Carbon Hydrogen Standard and can play an important role to meet the Government 10 GW low carbon hydrogen capacity target by 2030 as well as our net zero targets. It is important that these pathways don't fall through the cracks and that have an opportunity to apply for the business models. Relevant pathways include (but are not limited to) the following:

- Advanced conversion (e.g. gasification or pyrolysis) of waste streams such as refuse derived fuels, unrecyclable plastics and other wastes, which can include a mixture of biogenic and non-biogenic fractions
- Advanced conversion (e.g. gasification or pyrolysis) of biomass
- Steam methane reformation of biogas/biomethane
- Thermal Plasma Electrolysis (TPE) - while the chemistry of TPE is the same as for pyrolysis, the physics by which this is achieved are very different. This technology is considered to be further advanced than pyrolysis: commercial pilots should run by the end of 2022.

The REA is happy to compile and provide to BEIS market intelligence on projects in the pipeline for the above pathways.

A member of the REA has highlighted that they do not find the use of the word 'electrolytic' by BEIS as a shorthand for 'produced by water electrolysis' to be helpful. They believe electrolysis should be positioned as the electrolytic decomposition of any compound that releases hydrogen without the production of carbon dioxide as a by-product (ie not just water electrolysis).

Minimum production capacity (5 MW)

As previously highlighted, the REA consider that a wide range of scales and types of projects is required in the UK to build a functioning hydrogen economy. This includes smaller scale, decentralised projects which are key to kick start the hydrogen market and can be deployed relatively rapidly with the right support from Government. For this reason, we don't see the need to include a minimum threshold unless a separate dedicated support scheme is designed for smaller scale projects. We have previously shared with BEIS some initial suggestions and ideas to explore how a separate support scheme could be developed for smaller scale projects (0 – 50 MW). We have called it a

'CfD lite'. We welcome further discussions with BEIS on ways the Hydrogen Business Model could be simplified for smaller scale projects.

Hydrogen blending

We are disappointed to see that hydrogen blending is not eligible under this allocation round. The REA believe hydrogen blending into the gas network has a key role to play to support the scale up of the UK clean hydrogen sector and Government should clearly back its strategic role and support it financially. We have recently set out the reasons for this in [this position paper](#).

Hydrogen blends can reach many end users, not just a few large industrial users within the industrial clusters and can provide some decarbonisation effect for all of them.

In addition, blending of hydrogen is crucial in the first years of the electrolyser market as the ability to inject directly into the existing gas grid allows a materially lower risk option for hydrogen production developers to be able to develop projects, fund and build them. This materially de-risks the project and, crucially, allows for a much larger uptake of hydrogen production. This approach allows the hydrogen production market to develop and enables blending to play a crucial role as a steppingstone towards a decarbonised gas system.

We strongly believe that Government should signal their strategic and commercial support for blending now, or ahead of the allocation process and certainly ahead of FID, as failure to do so may result in some projects not being investable. Producers need more certainty on the overall demand for hydrogen before investment decisions can be made and the ability of blending hydrogen into the network can provide that certainty.

In addition, blending can help create a national market for hydrogen because it substantially lowers the cost of transport and storage. Without it, there is a risk that the UK will end up with different regional markets for hydrogen, each with different prices for it, driven in large part by transport costs. This is an inefficient outcome and could be manipulated by firstcomers who establish a monopoly position in a regional market. Instead, we need to create one large liquid market for hydrogen to enable a market price to establish itself, which in turn will enable buyers and sellers to trade and manage risk in much the same way as they do in other established markets. Key to this however is blending which enables multiple buyers and sellers to transact via the gas network.

Finally, based on feedback from members, there are projects in the pipeline that could turn curtailed renewable electricity sources into electrolytic hydrogen and inject a low amount of low carbon hydrogen into the national transmission system straightaway, within the current regulatory limit (0.1%). From a regulatory and technical point of view the network operator have informed these companies that they can already inject hydrogen, however the lack of certainty on the commercial support from blending may undermine investment decisions for these projects.

A gas network operator member of the REA has highlighted the importance for the gas networks to be notified in advance if any of the electrolytic production plants intend to

blend hydrogen into the gas network, either consistently or as spill over. The eligibility assessment should include if the project plans to use the existing gas network at all and the status of any discussions with the relevant gas networks.

Commercial Operational Date (COD)

Feedback from members on this criterion is that this timescale is extremely tight, especially in light of the significant delays in the planning system that some projects are experiencing. We understand this is due to the lack of resources and qualified personnel within planning authorities and may compromise the ability of these projects to meet the 2025 COD.

We suggest that some flexibility on the commissioning deadline is built within the contract: either this needs to allow for much longer commissioning windows or, the contract needs to be clearer and more explicit that the counterparty can use their discretion to provide more flexibility if required.

In general, some members who are experienced on the power CfD have highlighted the need for:

- More flexibility, leniency and proportionality in the contract, especially with regard to key delivery milestones ie less stringent requirements in milestone delivery dates.
- More flexibility on the long-stop dates (e.g. commissioning deadlines). Either the contract needs to allow for much longer commissioning windows or, the contract needs to be clearer and more explicit that the counterparty (e.g. LCCC) can use their discretion to provide more flexibility. The Power CfD is extremely rigid in terms of both the milestones set out above.
- Extending the number of days to make payments back to the counterparty body when the reference price exceed the strike price (from 10 to say 30 working days).
- More upfront clarity, transparency, guidance and proportionality on the final qualification step (including how the applicant demonstrates that commissioning has been met). Some members have said that under the Power CfD they felt they were paving the way as they were going through the process and they ended up with a bespoke set of requirements. Having clear guidance on the qualification process up front, which industry has been consulted on, will help provide clarity and transparency on what is required and how it should be interpreted.
- Providing an explanatory note (almost like an 'idiot guide') to accompany the 500 pages contract would help companies that don't have access to sophisticated legal advice to navigate through the contract.

Business Models for Transport and Storage

Within the British Energy Security Strategy the Government has committed to design by 2025 new business models for hydrogen transport and storage. Our members' feedback is that this is far too late and may undermine the ability of the sector to scale up capacity during this decade. A certain amount of storage for the hydrogen produced

from electrolytic projects is key to be able to access and store renewable electricity at a time it is cheaper (e.g. curtailed) and lower the levelised cost of hydrogen production. Also, and critically, storage is crucial to ensure reliability and security of supply to their offtakers. Storage infrastructure such as salt-caverns will take a long time to develop, so it is essential that these timescales are brought forward. Early visibility for the new business model for hydrogen transport and storage will underpin the start of this process.

2. Do you agree with the proposed evaluation criteria for the first 2022 HBM/ NZHF electrolytic allocation round? Yes/ No/ Don't know. If not, please explain why.

Yes, but with caveats.

BEIS' evaluation criteria are very focused on value for money. Although we understand the reasons for this, given that the hydrogen market is a very nascent market, the strong focus on value for money risks stifling growth as opposed to stimulate it.

Deliverability and Cost Considerations

A gas network operator member of the REA has emphasised that project-specific cost of providing gas network capacity for the transportation of hydrogen should be an explicit consideration within the Deliverability and Cost Considerations evaluation scoring. Where relevant, this should include access and costs to the natural gas transportation and distribution networks for blended hydrogen.

3. Do you agree with the proposed portfolio factors? Yes/ No/ Don't know. If not, please explain why.

Yes. This seems reasonable.

A gas network operator member of the REA has pointed out that access to natural gas and hydrogen transportation networks should also be a consideration as part of the Portfolio Selection. For example, consideration should be given to the strategic implications for the siting of electrolyzers that see blending of hydrogen into the gas network as part of their commercial strategy.

Electrolyzers will be sited in proximity to sources of generation and sources of demand. However, coordination of the siting of projects will be necessary to balance the relative costs of electricity and hydrogen transmission and maintain optionality for the future effective blending of hydrogen into the natural gas network. For example, when deciding when the electrolytic project should be sited, an assessment should be carried out on any upstream additions of hydrogen to ensure gas quality is always maintained and the upper blend limit is not breached.

This will be important to ensure that the potential to blend increasing volumes in the future is maintained.

4. Do you agree with our high-level approach to agreeing a HBM and CAPEX offer? Yes/ No/ Don't know. If not, please explain why.

Yes. Regardless of the pathway chosen for a HBM offer, BEIS would need to announce their approach right from the start, so industry would know where this was headed.

5. Do you think up to 20% CAPEX co-funding alongside HBM support is sufficient to enable electrolytic projects to take FID? Yes/ No/ Don't know. Please explain your answer.

It is difficult to answer this question without knowing what the value of the hydrogen business model support will be.

6. For agreeing the HBM offer, would you be in favour of having different pathways or negotiation approaches for projects? Yes/ No/ Don't know. If so, do you have any suggestions on how those pathways or approaches might look?

Yes. In principle we are in favour of adopting a lighter touch approach for certain types of projects.

In our preliminary discussions with BEIS on the need for a simpler financial support mechanism for smaller scale projects ('a CfD lite') we made similar suggestions. We said that one way to simplify the business model for these types of projects would be to eliminate the need for bidding and the competitive auction stage. The administrative costs to enter a bid are relatively higher for smaller scale projects (there is an economy of scale consideration). The significant administrative costs and burden associated with a competitive auction stage may mean that the scheme is not affordable for smaller projects or companies that cannot access sophisticated legal advice, or don't have the human and financial resources to deal with this level of complexity.

It should be noted that some of these concerns are directly related to the size of the installation producing the hydrogen. Others have more to do with the resources of the organisation funding the installations. A large company funding multiple small installations may be better able to manage some aspects of the mechanism than a developer with only one, larger project. This might apply to bidding strategy in auctions and getting to grips with the complexity of the contract itself.

We said it would be useful to have administratively set strike prices through a single fixed value available to all, or through bilateral negotiation (the former would probably make sense for multiple smaller projects).

We originally made some suggestions on a phased approach that would eventually enable BEIS to move to a competitive auction (e.g. from 2025/2026 onwards). We have included these suggestions below. Essentially, this would see the hydrogen business model support go through three distinct pathways/phases for setting strike prices (and rationing support).

Given that the timeframe is constrained by the recent British Energy Security Strategy, which sets out 'moving to price competitive allocation by 2025 as soon as legislation and market conditions allow', we would suggest **that the second pathway is run in parallel to the first pathway, for projects that require a lighted touch approach.**

We would suggest that projects are given an option to decide which pathway is more suitable for them.

Pathway 1: Multiple criteria/bilateral negotiation

As the market is just beginning, BEIS will form judgements based on a range of criteria, rather than allocating on price of output hydrogen alone. This would allow them to consider other factors such as a spread of technologies/end user markets, geographical location etc. BEIS are also likely to require more real-world information on fundable projects, since most of the information they have received to date will inevitably be based on what people would like or hope to do.

In this approach, BEIS publishes key criteria and how they propose to weight them, as well as a deadline to respond and the funding allocated to this round. Either internally or through third party consultants they score the projects and select a short list. They then agree strike prices bilaterally – which is likely to be on an open book basis.

This would get some projects away and help provide more real project information to BEIS and fill in any gaps in knowledge. It would not work as an ongoing model as far too 'stop/start' and it would be difficult to put projects together with so many uncertainties around the likelihood of getting support. So, this would be time limited – for example, for allocation rounds held in 2023 (or 23-24).

Pathway 2: Administratively set strike prices (the equivalent of a lighter touch approach)

For this phase strike prices would be set administratively. This phase would run for a few years (say perhaps 2024, 25 and 26). Government sets out in advance how long this phase will last and the strike prices applying to the various rounds.

There could be variations within this overall approach. BEIS could set a single strike price for all, different strike prices for different technologies and/or scales.

A significant advantage of this approach is that if a developer is approaching potential sites that are not already using hydrogen (or even in the energy business), their pitch needs to know what value of strike price they will get, if successful. It is essential for the developer to be able to say upfront what support the policy would give.

A challenge of this approach if this was going to be introduced from the start would be the potential lack of real world, credible cost data on projects which is crucial to be able to inform the setting of the strike prices.

Pathway 3: Strike prices set by auction

This would be broadly in line with the approach used in the power CfD. It would make sense once the market is more established, so developers would be better able to move beyond the limitations on certainty of strike price set out in phase 2.

Experience has shown that auctions are effective at encouraging competition and driving down costs between different developers using the same technology. However,

they haven't really been working when the competition is *between* technologies – there are one or two winning technologies and everyone else loses.

This is why it is important to move to this phase once there is a much better idea on the relative costs of different approaches, so that well-informed decisions can be made on whether to combine everything together or have separate pots for different technologies/scales.

7. Do you have any suggestions on what approaches could be used to differentiate projects and determine which pathway a shortlisted project goes into? What criteria would you use (e.g. MW)? What threshold would you use (e.g. 40MW)?

As highlighted above, projects could be given the option of which pathway they wish to follow.

It is also important to note that some of the concerns we have on the complexity of the business model are directly related to the size of the installation producing the hydrogen, whilst others have more to do with the resources of the organisation funding the installations. A large company funding multiple small installations may be better able to manage some aspects of the mechanism than a developer with only one, larger project.

Although a maximum threshold (e.g. 50 MW) could be one of the criteria, it should probably not be the only one ie there should be other factors considered. We would be happy to explore this further with our members to gauge more views on what criteria would be appropriate.