THE ASSOCIATION FOR RENEWABLE ENERGY & CLEAN TECHNOLOGY

20th September 2021

Member discussion on hydrogen business model consultation

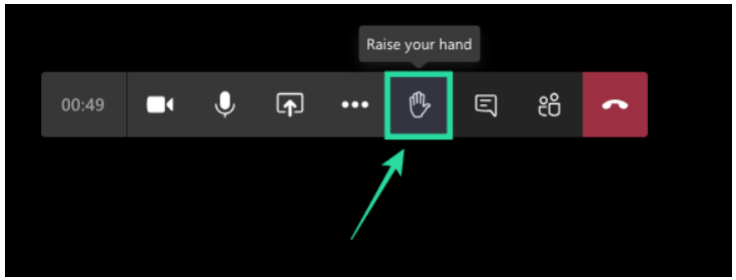
GREEN GAS HYDROGEN

@REAssociation

Decarbonising the economy

Meeting Housekeeping

- All please join as *muted* & *without video*
- Please note where the *conversation box* should you have any questions or wish to comment, or use the *raise your hand* button



- We will have *discussion* sessions during the meeting

The session will be recorded for accurate note taking.

Participants of the meeting will receive a copy of the slides and recording will be available upon request.

Thank you

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Hydrogen Package – all links

- Hydrogen Strategy released on 17th August.
- Wider package of policy documents released on same day along with the Strategy

  - **Consultation on a Hydrogen Business Model - to stimulate private investment in new low carbon hydrogen projects**
  - Consultation on the design of the £240 million Net Zero Hydrogen Fund (NZHF) - confirmed out to 2025 to support new hydrogen production projects
  - Consultation on a UK Low Carbon Hydrogen Standard - will define what is meant by low carbon hydrogen. Only hydrogen meeting the standard to be incentivised and supported
  - Further detail on projected costs of hydrogen production technologies out to 2050, and
  - Annex setting out the analysis and evidence underpinning the Hydrogen Strategy and consultations

Intended scope and key design parameters (section 2)

- ✓ Business model to be funded and delivered on a UK-wide basis to support domestic production and consumption
- ✓ **'Minded to position': producer-led revenue as opposed to end user model, across range of production technologies and end use sectors**
- ✓ Multiple production routes – including main routes but also other pathways (biomass gasification + CCS)
- ✓ Volumes need to meet low carbon standard to be eligible
- ✓ Only new plant supported
- ✓ No restrictions on end use / applications
- ✓ Volumes exported will not be supported
- ✓ **'Minded to position': private law contract as opposed to policy-based or economic regulation**

Q: Do you agree with BEIS' overall approach to introduce a contractual, producer focused business model covering the proposed scope?

Design of the business model: principles (section 3)

Table 3: Business model design principles

Principle	Description
Promotes market development	Model should incentivise producers to seek and develop sources of demand for hydrogen and promote its use
Promotes market competition	Model should not create barriers to market entry, enable abuse of market power, or provide an enduring competitive advantage to first movers compared to later market entrants
Investable	Model should provide sufficient predictability over revenues and returns to investors and mitigate risks which investors are not best able to bear
Value for money	Model should be effective in achieving its intended purpose at the lowest possible cost to government and prevent excessive returns to developers
Reduces support over time	Model should allow for revenue support to producers to reduce over time (within and between contracts) by being responsive to evolving market conditions and encouraging learning, innovation, and cost reductions over time
Suitable for future pipeline	Model should be fit for purpose for FOAK projects as well as nth of a kind projects with minor or reasonable adjustments
Compatible	Model should be compatible with other policies across the value chain and should not result in double subsidisation of the same units
Technology agnostic	Model should be applicable to a range of production technologies (provided they meet the low carbon hydrogen standard and do not create an enduring competitive advantage for one technology over another)
Size agnostic	Model should be applicable to a range of project sizes and should not incentivise inefficient sizing of production plants
Avoids unnecessary complexity	Model should avoid unnecessary complexity in its design, implementation and administration, and be transparent for producers to comply with

Q: Do you agree with BEIS' approach to the business model design?

Options for addressing price risk (section 4)

- ✓ 'Minded to position': 'Variable premium' mechanism as opposed to a 'Fixed price' or a 'Fixed premium'
- ✓ In the absence of a benchmark price, proxy for reference price to reflect as much as possible market value
- ✓ 7options considered for reference price
- ✓ In time, market benchmark will best represent the value of low carbon hydrogen in the market, but hydrogen market needs to be sufficiently liquid first – future contracts
- ✓ 'Minded to position' to use **achieved sale price**, which is the best proxy for market value, with a **NG floor price**
- ✓ **Additional contractual measures** to encourage producer to achieve higher sales price – e.g. a gainshare mechanism or a periodic payment linked to achieving or exceeding pricing threshold or benchmark

Q: Do you agree with minded to positions above?

Q: Are there any other risks, incentives or disincentives that have not been considered?

Indexation (section 4)

- ✓ BEIS propose to carry out more analysis to consider how the indexation options work across different archetypes of projects.
  - ✓ Inflation-linked
  - ✓ Actual input energy cost
  - ✓ Natural gas benchmark
  - ✓ Electricity price benchmark

- *Q: What do you think is the most appropriate option (or options) for indexation of the strike price?*

Limitation to price support when hydrogen used as a feedstock

✓ BEIS' preferred option for price support is a variable premium

- *Q: What are your views on whether price support for low carbon hydrogen should be constrained for applications using hydrogen as a feedstock to mitigate potential risks of market distortions?*

- *Q: Do you agree with BEIS' overall minded to position on price support?*

Volume Support (section 5)

- ✓ The sliding scale is BEIS' preferred option to provide volume support
- ✓ Other options considered are 'availability-based' payments, partial government offtake, government offtake backstop or offtake frontstop
- *Q: Do you agree with our minded to position of sliding scale for volume support?*
- *Q: Do hydrogen plants need any further volume support in addition to the sliding scale?*

Applicability across different project types (section 6)

- ✓ BEIS have considered whether a different approach would be required for different types of projects and keen to accommodate these through different design features (e.g. indexation, allocation, funding pots and different strike prices) – as opposed to design a new scheme for smaller projects
- ✓ BEIS' view is that the majority of potential smaller scale projects would have the opportunity to proceed without a separate revenue support scheme

- *Q: Do you believe BEIS' preferred options on price and volume support outlined can work across different production technologies and operating patterns? If not, what difference in payment mechanisms might be required between different technologies and how should any downsides associated with that be managed?*
- *Q: Do you agree with BEIS' proposal not to introduce a separate revenue support scheme for projects of a smaller scale?*

Contract duration (7.1)

- ✓ BEIS are seeking views on the appropriate contract length
- *Q: What do you think is an appropriate length of contract?*
- *Q: Should the length of contract vary for different technologies?*

Scaling of support for future production volumes (7.2)

- ✓ Hydrogen producers may wish to have the ability to increase the volume of hydrogen produced at a plant above the capacity defined in the contract
- ✓ Options considered: no volume scaling allowed, 'grandfathering', 'accordion'
- *Q: What are your views on the most appropriate option for scaling up volumes?*

Key risks (7.3)

- ✓ BEIS' initial view reflects the risks faced by initial hydrogen production facilities, and is likely to evolve as the hydrogen market develops and with it the necessary commercial frameworks. A full risk table can be found on p.73
- *Q: Do you agree with BEIS' minded position to allocation of the risks presented?*

Compatibility with existing subsidy regimes (7.4)

- ✓ A key design principle for the business model is that the subsidy should be compatible with other existing support policies across the hydrogen value chain, including:
  - ✓ RTFO
  - ✓ CfD for low carbon electricity where electricity used as input energy for electrolytic hydrogen production
  - ✓ Schemes available to end users such as IETF for industrial users and GB Capacity Market for hydrogen-fired power generators

Keen to explore the benefits of 'revenue stacking', but avoiding double counting and overcompensation

- *Q: Do you agree with BEIS' approach to seek to accommodate different sources of support?*
- *Any views on risk of perverse outcomes linked to revenue stacking and how these could be mitigated*

Allocation (section 8)

1. Bilateral negotiation
2. Auction
   - ✓ Different approaches may be required over time or even a combination of the two approaches
   - ✓ BEIS keen to provide a route forward for initial projects not eligible under the cluster sequencing process (e.g. electrolytic projects) and are considering the best approach and process for initial contract allocation.
   - ✓ Minded to invite project applications in 2022, for assessment against defined evaluation and eligibility criteria, followed by a bilateral process with selected projects to enable final investment decisions to be made from 2023.
   - ✓ Expect competitive allocation (auction) in the long term

✓ *Q: What are your views on the most appropriate allocation mechanism for the hydrogen business model contract, both in the near term (for projects outside the CCUS cluster sequencing process) and the longer term (for all technologies/projects)?*

Funding the hydrogen business Model (section 9)

- ✓ Further details of the revenue mechanism that will fund the hydrogen business model will be provided later this year.
- ✓ Potential for funding through suppliers obligations and suppliers passing costs onto energy bills (e.g. Control for Low Carbon Levies for renewables, and Green Gas Levy).

- *Q: What are your views on the possible approaches to funding the proposed hydrogen business model?*

Distribution and storage (section 10)

- *Q: Do you agree with BEIS' proposal to allow projects to factor in small-scale hydrogen distribution and storage costs as part of projects' overall costs of production when bidding for business model support?*
- *Do you consider that bespoke funding model(s) might be needed to enable investments in larger-scale, shared hydrogen networks and storage? If so, which model(s) might be best suited to bring forward projects?*

Thank you

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