THE ASSOCIATION FOR RENEWABLE ENERGY & CLEAN TECHNOLOGY

23rd March 2021

REA Hydrogen Working Group meeting

GREEN GAS HYDROGEN

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Decarbonising the economy

Meeting Housekeeping

- ✓ All please join as *muted* & *without video*
- ✓ Please note where the *chat box* should you have any questions or wish to comment
- ✓ 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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Agenda

- Welcome (REA Green Gas Chair, William Mezzullo, Foresight Group)
- Roundtable of introductions from group participants (All)
- REA's new focus on Hydrogen: setting the scene (REA)
- Government agenda on hydrogen (REA, all)
- Working Group priorities (All)
- Next steps (All)
- Last comments and meeting close (REA Green Gas Chair, William Mezzullo, Foresight Group)

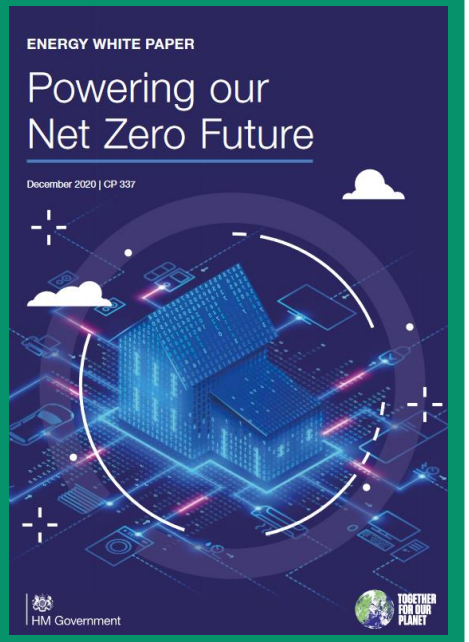
Setting the scene

1. REA Board approved plan to change Biogas Forum to *Green Gas Forum*.

2. We have set up a new **working group on Hydrogen**, aimed at moving the hydrogen agenda forward with Government.

Government agenda

- Key commitments in 10-Points Plan and Energy White Paper
- Industrial Decarbonisation Strategy
- BEIS work on Business Models and NZHF
- Transport / RTFO consultation



Energy White Paper highlights (Gas)

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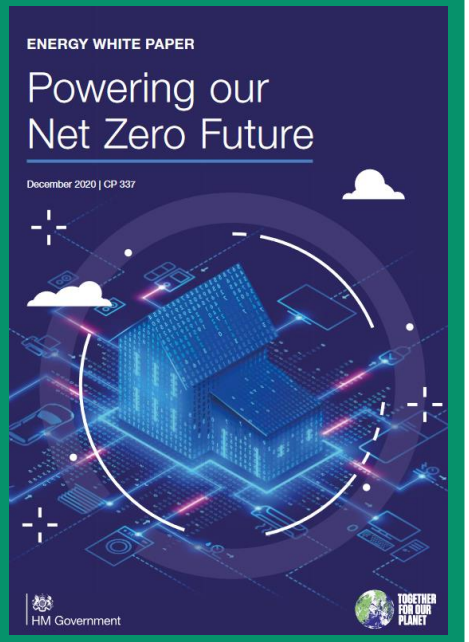
- ✓ Consult on updates to the *Gas Act* to help decarbonise gas supplies while providing correct price signals to market participants.
  - *End gas grid connections to new homes* being built from 2025 – consultation
  - Reviewing the *Domestic Load Connection Allowance*
  - *Review of gas quality standards* to enable wider range of gases
- ✓ Continue to work with the HSE to enable *up to 20% H_2 blending* on the network by 2023.
- ✓ Workshops and consultations in 2021 to look at the future of gas.
- ✓ By mid-2030s they expect *all newly installed heating systems to be low carbon or appliances that can be converted to a clean fuel supply*

Full briefing: https://www.r-e-a.net/resources/rea-members-only-briefing-on-the-governments-energy-white-paper/



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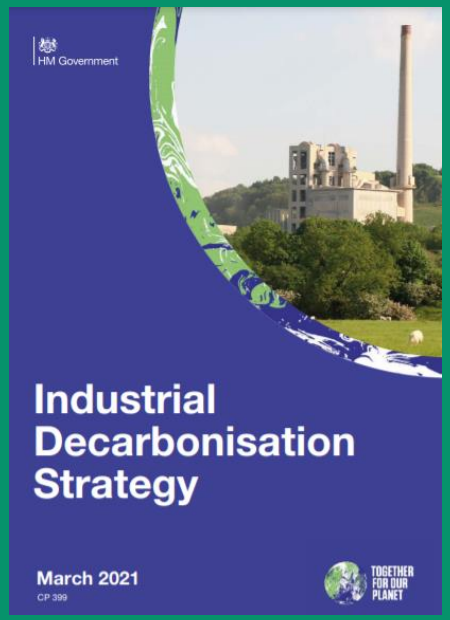
- ✓ *Hydrogen Strategy in 2021* – in the summer?
- ✓ *5 GW production capacity* by 2030 (42 TWh/annum)
- ✓ *Net Zero Hydrogen Fund* (NHZF) to support production: £240m of capital co-investment out to 2024/25
- ✓ They will consult on the role of *hydrogen ready appliances* in 2021 – encouraging or requiring new gas boilers to be 'hydrogen-ready'
- ✓ Further details in 2021 on a revenue mechanism to encourage investment into *new business models* to support industrial CCUS and clean H_2.
- ✓ Government '*Industrial Clusters Mission*' aiming to deliver four low-carbon clusters by 2030 and one fully net zero cluster by 2040.
- ✓ *Industrial Decarbonisation Strategy* 2021 – published on 17th March
- ✓ *Heat & Buildings Strategy* in early 2021 – Spring?



Low-Carbon H_2

- ✓ *Net Zero Hydrogen Fund* (NHZF) to kickstart both commercial CCUS-enabled (blue) and electrolytic (green) hydrogen production:
  - ✓ Work with industry to design the scheme. Further details in the coming months.
- ✓ Developing *business models* to overcome cost gap between low carbon hydrogen and higher carbon fuels such as natural gas:
  - ✓ Consultation in Q2 2021, with final model agreed in 2022
  - ✓ Further details on the revenue mechanism to fund hydrogen business model later in 2021
- ✓ Gathering evidence on emissions associated with different hydrogen production technologies. BEIS will work with industry to develop a UK standard that defines low carbon hydrogen (further details will be provided in the *UK Hydrogen Strategy*)
- ✓ Various money pots allocated to support industrial clusters- see Annex 3 (£170 million Industrial Decarbonisation Challenge)
- ✓ Various modelling scenarios in terms of H_2 consumption in industry (TWh/annum of H_2 consumed by 2030 and 2050)

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Member briefing here: *https://www.r-e-a.net/resources/members-only-briefing-on-beis-industrial-decarbonisation-strategy/*

BEIS work on NZHF and business models

- REA's update on business models (BM) work from yesterday's meeting with BEIS BM team
- BEIS slides on NZHF
- BEIS market intelligence work on green hydrogen:
  - Improve understanding of project pipeline across the 2020s
  - Timings of existing and potential green hydrogen production projects in the UK
  - Economic assumptions and barriers to deployment for green hydrogen production projects
- Project capture survey here, to be completed by 31st March.

1. Background: A new ambition for low carbon hydrogen

Working with industry, the UK is aiming for **5GW of low carbon hydrogen production capacity by 2030**

NZHF: capital co-investment that can establish the technology to deliver a major boost to production capacity

£240m Net-Zero Hydrogen Fund confirmed to 2025, to support low carbon hydrogen production

Clear statement of intent in late 2020

Ministers are clear that UK is well positioned to take a **'twin track'** approach and bring forwards different production technologies

Department for Business, Energy & Industrial Strategy

Source: slides provided by BEIS, March 2021

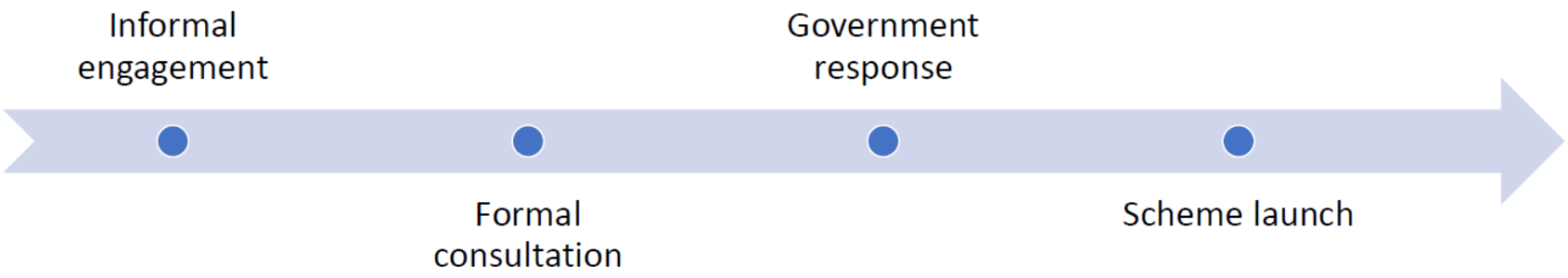
3. Scheme design: High level assumptions

- £240m for the period 21/22 – 24/25
- Fund was envisaged as capital co-investment
- New low carbon hydrogen production
- Expanded fund to replace LCHF
- Intention to support green & blue hydrogen
- Contribute towards 5GW ambition

Fund will work alongside **business models** and the revenue mechanism to scale up the UK hydrogen economy

Source: slides provided by BEIS, March 2021

4. **Next steps** and questions for you



- Where could the Fund have most impact in meeting our ambition for 5GW of new low carbon hydrogen production by 2030?
- What are the funding gaps for green hydrogen deployment (2021-25)?
- How would you see grant funding and business models (longer-term) interacting?

Source: slides provided by BEIS, March 2021

Transport/ RTFO

- ✓Paul Thompson - Head of Renewable Transport Fuels & Landfill Gas

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Member briefing here: *https://www.r-e-a.net/resources/members-only-briefing-on-beis-industrial-decarbonisation-strategy/*

REA position

~~Grey hydrogen~~	Blue hydrogen	Green hydrogen and biohydrogen
•We do not support, as significantly polluting in terms of GHG emissions *•Should we advocate for a phase out date for grey hydrogen?*	• We support as a transition technology, if carbon is captured, stored or utilised in an application where the carbon is permanently sequestered. • The carbon is tracked, monitored, and fully accounted for.	• Zero (if from 100% RE) or even negative emissions (bio-H_2 combined with CCS) • REA strongly support these pathways as they represent truly zero or negative GHG emission forms of hydrogen production.

- ✓ Carbon should be tracked, monitored and fully accounted for regardless of the pathway
- ✓ The sooner the emissions are reduced the better.

Policy asks: A coordinated approach

- Clear long-term strategy and coordinated policy framework required to support investment and mass deployment of low-carbon hydrogen
  - avoid piecemeal measures
- Collaboration between Government department (BEIS and DfT) and with regulators to ensure a joined-up approach

Measures to support hydrogen production

- Exempting electrolysers:
  - From 'green levies' on electricity bills (see EII Scheme)
  - If they provide grid services, from use of system fees (on a time limited basis), or adopting a system akin to the new rules for grid balancing charges borne by energy storage assets – i.e. on a net usage basis
- Business Rates could also be reduced or removed for early adopters, to speed adoption
- Tax efficient restrictions (EIS, VCT ineligibility) should be removed from hydrogen production from renewables.
- Consider defining permissible ownership and operating models for Power to Gas (P2G) so that renewable hydrogen can be injected into gas networks (either legislation is required to establish rules for third party P2G operators on a commercial basis, or legislation to make P2G part of the regulated asset base).

Measures to support renewable hydrogen in transport

- Waive VAT on renewable hydrogen for transport applications until 2030, or charge at the lower rate of 5% (as applied to Energy Saving Materials)
- Amend RTFO to enable more flexible rules for qualification of renewable electricity for making renewable hydrogen
- Amend the RTFO to provide appropriate support for biohydrogen

Measures to support low-carbon H_2 production

- Introduce a GHG based mechanism to follow on from the Green Gas Support Scheme, as described in our 2019 paper.
  - Obligation on gas suppliers to meet a gradually increasing GHG emission reduction target over a period of time
  - Mechanism that rewards technologies that deliver the largest carbon savings, whilst driving innovation and best practice
  - Technology neutral
  - This could be linked with national quotas/targets for hydrogen injection into the gas grid, for 2025, 2030 and onwards.

Measures to support blending

- Amend the Gas Safety (Management) Regulations 1996 (GSMR), or at least grant an exemption for H_2 injection, to allow 10% to be added.
- Sort the billing methodology (Gas (Calculation of Thermal Energy) Regulations (CoTER) to allow blending of hydrogen into the distribution network without the need to add significant propane.
- Create capacity in the distribution network to allow hydrogen to be injected.

Next steps

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Thank you

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