Hydrogen – Costs, storage and transportation

APPG Energy Costs

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UK context

- UK has set benchmark by legislating for net zero – hydrogen critical to achieving this
- BEIS and CCC analysis shows significant amounts of low carbon hydrogen in energy system in order to meet net zero (CCC Dec '20 160-380TWh by 2050; currently 10-27TWh, not low carbon))
- Corroborated by a range of external reports
- UK geography, geology, history & institutional arrangements offer specific advantages
- UK has lots of good use cases for hydrogen in a variety of end use sectors: industry, power, heating, transport

Consensus of Views

- **National Grid**'s annual Future Energy Scenarios (July): Hydrogen and carbon capture and storage **must be deployed for net zero**. H2 provides between 152 - 591TWh by 2050,.
- **Aurora:** 2050 scenarios range from 210-500TWh, mix of green & blue H2
- **UK H&FC Research Hub:** H2 consumption by 2050 120-750TWh.
- **Bloomberg** (May): Meeting climate targets likely to require a clean molecule, especially for the hard-to-abate sectors. Hydrogen could meet up to 24% of the world's energy needs by 2050.

UK Hydrogen Strategy

Former BEIS Secretary of State Alok Sharma publicly committed to publish a UK Hydrogen Strategy in early 2021 (*EAC hearing 10/09*)

Development of the UK strategy is well underway, working closely with Ministers & stakeholders

Expect to cover:

- Case for hydrogen in UK context, HMG vision
- Whole system view (supply through to demand)
- Whole UK view
- Action required in 2020s, including laying ground for ramp up beyond 2030
- Economic benefits for UK
- Role of various actors

Hydrogen in the Ten Point Plan

- **5GW** of low carbon hydrogen production capacity **by 2030** supporting up to **8,000 jobs;** 1GW by 2025
- Confirmation of intent to publish first **UK hydrogen strategy**
- **£240m Net Zero Hydrogen Fund** committed out to 2024/25 for capital co-investment in early hydrogen projects
- Commitment to bring forward plans for a **revenue mechanism** to support low carbon hydrogen projects and begin consultation on Government's preferred **business models** for hydrogen
- Promote low carbon **co-location benefits** in 'SuperPlaces'
- Work with industry to complete testing necessary **to allow up to 20% blending of hydrogen into the gas distribution grid**
- Support industry in trialling homes using **hydrogen for heating and cooking:** Hydrogen Neighbourhood in 2023; Hydrogen Village by 2025; Hydrogen Town – equivalent to tens of thousands of homes – before the end of the decade.
- Hydrogen confirmed as one of the priority areas for £1bn Net Zero Innovation Fund

Production: twin track approach

Not blue *or* green, **both**

- Low carbon hydrogen at scale in 2020s; volumes that support innovation and investment across the value chain
- Scale up of renewable hydrogen
- Pathway to net zero

Approach informs

- Innovation (to date & future)
- Net Zero Hydrogen Fund development
- Business model development
- Strategy development

"By 2050, a **new low-carbon industry** is needed, with UK hydrogen production capacity of **comparable size** to the UK's current fleet of **gas-fired power stations**."

CCC: Reducing UK emissions: 2020 Progress Report to Parliament

Next steps

- HAC working groups – from January
- Engagement on NZHF – over the coming months
- Engagement on strategy development – ongoing
- HMT final report on the Net Zero Cost Review – spring 2021
- Call for evidence on affordability and fairness (wider energy system) - by April 2021
- Hydrogen Strategy publication – early 2021
- ‘Minded to’ consultation on hydrogen business models – alongside strategy