INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

# IPHE Country Update April 2022: United Kingdom

| | |
|---|---|
| **Name** | Iona Mylek |
| **Contact Information** | Iona.mylek@beis.gov.uk |
| **Covered Period** | November 2021 – April 2022 |

## 1. New Initiatives, Programs, and Policies on Hydrogen and Fuel Cells

- **Energy Security Strategy (April 2022):** The government published the British Energy Security Strategy which sets out how Great Britain will accelerate homegrown power for greater energy independence. In line with a wider package of measures, the government announced a significant increase in the UK's hydrogen ambition: a **doubling of previous ambition to 10GW of low carbon hydrogen production capacity by 2030**, subject to affordability and value for money. **At least half of this will come from electrolytic hydrogen**, drawing on the scale up of UK offshore wind and other renewables and new nuclear.
- Alongside this increased ambition, the UK also committed to:
    - Aim to run annual allocation rounds for electrolytic hydrogen under the hydrogen business model, moving to price competitive allocation by 2025 as soon as legislation and market conditions allow. This will mean up to 1GW of electrolytic hydrogen in construction or operational by 2025, with up to 2GW of production capacity overall (including CCUS-enabled hydrogen).
    - Design, by 2025, new business models for hydrogen transport and storage infrastructure, which will be essential to grow the hydrogen economy and provide security for producers and consumers of hydrogen.
    - Set up a hydrogen certification scheme by 2025, opening up export opportunities and helping ensure both exported and imported hydrogen meets the high standards that UK companies expect.
- **Hydrogen Investment Package (April2022):** As part of a wider £375 million package of support for innovative energy technologies, the government:
    - Published a Hydrogen Investor Roadmap to shine a spotlight on the numerous investment opportunities across the hydrogen value chain and drive private investment in hydrogen to help boost the homegrown UK hydrogen industry built on clean, affordable power.
    - Published the response to our consultation on a Low Carbon Hydrogen Standard, with the intention of setting a maximum threshold for greenhouse gas emissions allowed in the production process for hydrogen to be considered low carbon under the Net Zero Hydrogen Fund and hydrogen business model.
    - Published the response to our consultation on the Net Zero Hydrogen Fund, designed to support at-scale deployment of low carbon hydrogen production during the 2020s.
    - Published the response to our consultation on the Hydrogen Business Model also provides an update on the government reviews of hydrogen network and storage infrastructure requirements in the 2020s and beyond, as committed to in the Hydrogen Strategy.
    - Alongside the consultation response we are also published indicative Heads of Terms for the hydrogen business model contract, which set out a preliminary and indicative framework for the principal terms and conditions

that are expected to be included in the underpinning contract – the Low Carbon Hydrogen Agreement.

**2. Hydrogen and Fuel Cell R&D Update**

- The UK is supporting hydrogen use as part of the transformation to low carbon solutions including through programmes funded by the Net Zero Innovation Portfolio such as the £60m Low Carbon Hydrogen Supply competition, £55m Industrial Fuel Switching 2 competition and £40m Red Diesel Replacement competition. The closure reports from earlier phases of the Industrial Fuel Switching and Hydrogen Supply competitions were published, showing success in reducing costs.
- Phase 2 of the £315m Industrial Energy Transformation Fund was launched in 2021, with three further rounds in 2022, increasing readiness for the hydrogen economy by supporting companies to invest in fuel switching technologies, increasing the demand for hydrogen in industry and helping to build the commercial case for low carbon hydrogen projects.

**3. Demonstration, Deployments, and Workforce Developments Update**

- **Cluster sequencing for CCUS (Carbon Capture Useage and Storage) deployment:** CCUS clusters have potential to enable low carbon hydrogen production at scale. Phase 1 of Cluster Sequencing identified Hynet and the East Coast Cluster as track 1 clusters for the mid-2020s, with the Scottish Cluster as a reserve. Track 1 Clusters will now be taken forward into negotiations. If the clusters represent value for money for the consumer and the taxpayer then subject to final decisions of Ministers, they will receive support under the government's CCUS Programme. Phase-2 of the process is now underway and focuses on identifying individual Projects across capture applications (industry, power, hydrogen) which could connect to a Track-1 or Reserve Transport & Storage Cluster.

**4. Events and Solicitations**

- Breakthrough Agenda Hydrogen Breakthrough working and contact group meetings (Q1-Q2 2022), as part of the Global Checkpoint Process to monitor and review progress against the Breakthrough Agenda.

**5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding**

- This Hydrogen Investment Package marks a substantial step forward in getting low-carbon hydrogen built in the UK because it paves the way for opening up two new funding rounds:
    - the £240m Net Zero Hydrogen Fund, which opens for applications on 25 April.
    - The first £100 million electrolytic allocation round of the hydrogen business model. This allocation round will be held jointly with the Net Zero Hydrogen Fund – it will open in summer.
- Recent private investment announcements include:
    - ITM Power (hydrogen production manufacturer) has raised £250m to expand their electrolyser manufacturing capacity in Sheffield – responding to a 131% rise in their order book to June 2021. Now aiming for 5GW of production by 2024.

- ITM Power (hydrogen production manufacturer) involved in Green Hydrogen for Scotland project aiming to create a complete hydrogen-based market solution to reduce for Glasgow City Council's fleet emissions by 2029.
- BP has announced plans to build a new large-scale electrolytic hydrogen plant in Teesside with a capacity of 60MWe by 2025 and 500MWe by 2030. This is in addition to planned 1GW blue hydrogen facility on Teesside.
- Essar Oil UK and Progressive Energy are planning a £750m investment in two hydrogen plants as part of the Hynet CCUS Cluster.
- Lighthouse BP leading on the South Wales Industrial Cluster (SWIC) project aiming to enable development of renewable hydrogen generation and electrolyser facility for onsite steel manufacturing.
- BP, Drax, Equinor and SSE (major energy companies) are backing the CCUS East Coast Cluster project which has been selected by government to be assessed on a value for money basis to establish if they quality for support from the £1bn government funding programme.
- Protium (green hydrogen company) have announced plans to build 40MW of electrolytic production at Wilton Universal Group's site on Teesside, including storage. The hydrogen produced is planned for local manufacturers, helping them transition from natural gas and diesel energy.
- HyCap is a new £1billion fund launched to finance green hydrogen projects led by Jo Bamford (Wrightbus) and Vedra Partners
- Similarly, HydrogenOne is a clean hydrogen focused fund looking to invest approximately £100m over the next 18 months in green and blue hydrogen companies and projects.
- INEOS recently announced £25m strategic investment in HydrogenOne, London's first listed fund to clean hydrogen, which is looking to raise £250m.

**6. Regulations, Codes & Standards, and Safety Update**

- As outlined above, the Hydrogen Investment Package included the government response to our consultation on the low carbon hydrogen standard.
- Government is working with the Health and Safety executive (HSE) to develop and assess the evidence on the safety of using hydrogen in domestic, commercial and industrial settings, as well as in the gas networks. This work will provide a full understanding of the changes required to use hydrogen safely and the costs and feasibility of necessary safety measures.
- The UK established a Hydrogen Regulator's Forum to determine the current and future non-economic regulatory responsibilities across the hydrogen value chain.