INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update December 2024 – June 2025: [United Kingdom]

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

- Hydrogen Strategy Refresh
  - Since the UK Hydrogen Strategy was first published nearly four years ago (August 2021), we have seen a huge amount of progress but also change.
  - Our strategic approach must continue to be based on robust analysis and reflect the latest evidence, to ensure that hydrogen achieves its unique role in the Government's Clean Energy Superpower and Growth Missions.
  - The UK Government will therefore be publishing a refresh to the UK hydrogen strategy later this year.
- Hydrogen Updates to the Market:
  - In December 2024 we published a Hydrogen Strategy Update to the Market which sets out the key milestones achieved by the Department for Energy Security and Net Zero in 2024 to deliver the hydrogen economy and a forward look at our next steps and upcoming opportunities.
  - We will also continue to show progress through our regular Updates to the Market and expect the next one to be published in Summer 2025.
- Gas Shipper Obligation Consultation:
  - From January 16th to April 9th 2025, government ran a consultation seeking views on proposed design choices of the Gas Shipper Obligation. The Gas Shipper Obligation is intended to be the long-term funding mechanism for initial hydrogen production projects funded through the Hydrogen Production Business Model. It may also fund further hydrogen projects, subject to future decisions on the hydrogen programme and the funding of future hydrogen production projects.
  - Officials are now analysing feedback from this.
- Various documents, including:
  - Hydrogen to Power Consultation and Government Response
    - In December 2024, the UK Government confirmed we will be introducing **a** Hydrogen to Power Business Model to support its accelerated deployment, and outlines the next steps government will take to deliver its market intervention. This is a major step in unlocking hydrogen-powered electricity generation, ensuring hydrogen can meaningfully contribute to making the UK a clean energy superpower, one of the Government's overarching strategic aims.
  - Innovative Hydrogen to Power Projects Call for Evidence

        - In March 2025, the government sought technical evidence on innovative hydrogen to power projects that could deliver by 2030, ahead of large-scale enabling hydrogen infrastructure. The Call for Evidence closed on the 12th of May 2025.
    - Hydrogen Allocation Round 2 Shortlist:
        - The Hydrogen Allocation Rounds are the flagship delivery programme for delivering low carbon hydrogen in the UK. Building on the success of that, the Second Hydrogen Allocation Round was launched in December 2023.
        - On 7 April 2025 the Government announced a shortlist of 27 projects across England, Scotland and Wales that have been invited to the next stage of the Second Hydrogen Allocation Round process, which includes due diligence and cost assurance.
        - We will continue to assess whether projects are deliverable, affordable, and represent value for money throughout the due diligence process. Being on the shortlist does not imply availability of funding for any of the shortlisted projects and a project's inclusion on the shortlist does not guarantee government support.
    - UK-Germany Trade Study
        - In April 2025 a joint UK-Germany study on hydrogen trade was published. The study was undertaken by Arup, DENA (the German Energy Agency) and Adelphi to consider the feasibility of, and steps required to enable pipeline-based hydrogen trade in the future.
        - The study has set out the building blocks needed to enable future trade and we will work closely with our German counterparts on the next steps which include areas such as regulatory alignment and stakeholder engagement.
- UK-EU Summit
    - The UK and EU explored areas with the potential to strengthen bilateral cooperation, which resulted in a Common Understanding.. The agreed Common Understanding includes a statement on new (energy) technologies, specifically: "*the United Kingdom and the European Commission welcome continued technical regulatory exchanges on new energy technologies such as* ***hydrogen, carbon capture, utilisation and storage*** *and biomethane*."
    - We are interested in continued hydrogen collaboration with the EU on areas of common interest, and to build on the progress made from previous engagement, such as the November 2024 Specialised Committee on Energy.
- UK Maritime Decarbonisation Strategy
    - In March 2025, the UK published the Maritime Decarbonisation Strategy, which sets out the UK's plans for decarbonisation of the UK domestic maritime sector, including new goals of zero emissions by 2050, and reductions of lifecycle greenhouse gas (GHG) emissions of 30% by 2030 and 80% by 2040.
    - The Maritime Decarbonisation Strategy includes five key policies to decarbonise the sector: implementing fuel regulations internationally

and domestically, introducing domestic GHG pricing through the UK Emissions Trading Scheme, taking action on emissions at berth, reducing emissions from smaller vessels, and improving energy efficiency.

- The introduction of these policies, especially fuel regulations agreed at the International Maritime Organization (IMO) in April 2025 and domestic regulation (subject to consultation in 2026), are expected to drive uptake in zero and near zero GHG emission fuels including hydrogen and its derivatives, ammonia and methanol.

2. Hydrogen and Fuel Cell R&D Update

The UK continues to support groundbreaking research and innovation in hydrogen through the commercialisation-focused £1bn Net Zero Innovation Fund. Recent updates include:

- The Low Carbon Hydrogen Supply 2 competition has supported a number of demonstrator projects. ERM received £8.6m to test its offshore pipe connectors (risers) and run a world-leading demo of electrolysis using seawater in Wales. ITM received £7.7 million for its Gigatest project which deployed and validated the use of new manufacturing equipment to help automate production processes and to improve quality standards, with potential to realise a manufacturing capacity of 1GW/year by the end of the project.

- The Hydrogen BECCS (bioenergy with carbon capture and storage) Innovation Programme has generated hydrogen across England, Northern Ireland and Wales with highlights including United Utilities generating hydrogen from biogas at their Trafford wastewater site and the production of hydrogen for dual-fuel combustion by Compact Syngas Solutions at Deeside.

- The Industrial Fuel Switching Programme has supported several pioneering demos, including a world-first whisky distillation using hydrogen, a world-first crematorium trial, and a recent successful test of the industrial-scale use of hydrogen in a recycling furnace in Warrington by Novelis.

In addition to the DESNZ funded activity above, UKHyRES, the UK Hub for Research Challenges in Hydrogen and Alternative Liquid Fuels, is backed by UK Research and Innovation's Engineering and Physical Sciences Research Council. After a competitive process, 10 research projects have recently been awarded a combined total of nearly £3 million for pioneering studies across a mix of disciplines.

Between 2023-2025, the Natural Environment Research Council (NERC) and DESNZ funded a research programme to improve our understanding of the climate and air quality impacts of hydrogen energy. A two-day workshop was held in March 2025 with a broad range of attendees from research and industry to share and discuss the key results and findings from the programme, where it was highlighted that the climate benefits of a hydrogen economy are greatest when atmospheric release is reduced as

far as possible. More details of the programme are given at https://h2envimpacts.org.uk/.

3. Demonstration, Deployments, and Workforce Developments Update

- Zero Emission HGV and Infrastructure Demonstrator (ZEHID) programme
  - The up to £200m ZEHID programme will deploy hundreds of battery electric and hydrogen fuel cell HGVs and their associated recharging and refuelling sites by March 2026.
  - The programme will address initial infrastructure provision and provide confidence regarding different ZE HGV technologies.
  - Over 300 ZE HGVs and have now been ordered, and a map of 54 planned infrastructure locations was announced on 6 March 2025.
- UK Shipping Office for Reducing Emissions (UK SHORE)
  - In January 2025, the UK launched the sixth round of the Clean Maritime Demonstration Competition.
  - This will provide £30 million additional funding to support the design and development of low to mid TRL clean maritime technologies which, in previous funding rounds, have included hydrogen-related projects.

- In February 2025 the Hydrogen Skills Alliance (HSA) launched Empowering the Future: A Strategic Skills Plan for the UK Hydrogen Economy. Overseen by the Hydrogen Delivery Council's jobs, skills and supply chains working group, the document outlines a strategic plan of action for hydrogen skills and calls for a collaborative approach that is fast, dynamic and complements the existing skills ecosystem.
- The Hydrogen Skills Framework, launched in April 2025, was the first deliverable from Empowering the Future: A Strategic Skills Plan for the UK Hydrogen Economy. It is a new, open-source, proof-of concept skills framework to help employers develop the skills needed to build their future workforces. The framework will enable the creation of industry-recognised qualifications and quality assured training programmes, ensuring alignment with the hydrogen sector's evolving needs.

4. Events and Solicitations

- Financial Times Hydrogen Summit - 24 June 2025 (London)
- Investing in Hydrogen Global Summit 2 – 3 September 2025 (London)

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

N/A

6. Regulations, Codes & Standards, and Safety Update

- PAS Standard for H2 Appliances
  - Following the publication of the government response to *Enabling or requiring hydrogen-ready industrial boiler equipment: call for evidence* in December 2022, DESNZ sponsored the British Standards Institution (BSI) to develop a Publicly Available Specification (PAS) for hydrogen-ready industrial boiler equipment.
  - PAS 4445:2025 has since developed to give comprehensive recommendations for the safety, design, construction, testing, and performance of large hydrogen-fired equipment for use in industrial and commercial (non-domestic) settings.
  - The PAS covers equipment which is manufacturer-purpose built, manufacturer-converted, retrofit-converted to use hydrogen, or supplied suitable for future conversion to hydrogen, and covers pre-conversion, the conversion procedure, and post-conversion processes.
  - PAS 4445:2025 will improve safety, enable reliable testing and performance, align the market, promote innovation, and support decarbonisation of large hydrogen-fired equipment.
- The Department for Transport introduced an amendment to The Road Vehicles (Construction and Use) regulations 1986 to allow hydrogen-powered off-road machinery to be used legally on UK roads. The legislation was laid before parliament on 7th April and entered into force on 29th April.
- The Health and Safety Executive (HSE) has recently launched a public consultation exploring proposals for legislative change in relation to Carbon Capture Utilisation and Storage operations offshore and in pipelines and offshore production of hydrogen. The consultation will run until the middle of August, with a formal response to follow in the autumn.