

The University of Sheffield has recently installed a PEM electrolyser to produce green hydrogen for developing and testing new hydrogen fuels. Picture credit: University of Sheffield

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UK HYDROGEN WEEK 2024

Following the success of its inauguration last year, UK Hydrogen Week is taking place once again, from Monday, 26 February until Sunday, 3 March



With over 6,300 individuals and 110 partners and supporters taking part, UK Hydrogen Week 2024 is an initiative that brings together stakeholders from across the nation to highlight the role of hydrogen in reaching the UK's net zero targets.

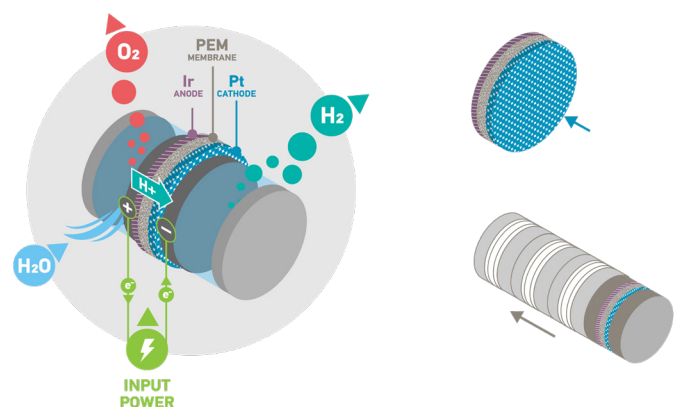
According to the UK government, which is committed to having six gigawatts of domestic green hydrogen production capacity by 2030, hydrogen presents a massive economic opportunity for the UK, creating over 12,000 jobs and up to £11 billion of investment by 2030.

Electrocatalysts containing the platinum group metals platinum and iridium are used in proton exchange membrane (PEM) electrolysis, one of the leading technologies available to make hydrogen. When a PEM electrolyser is powered using renewable electricity, this is termed 'green hydrogen', a carbon-free energy carrier that is increasingly viewed as essential to the energy transition.

In December 2023, the UK government announced around £2 billion in revenue support for 11 major projects to produce 125 megawatts of green hydrogen and confirmed that suppliers will receive a guaranteed price from the government for the clean energy they supply. In parallel, over £90 million from the Net Zero Hydrogen Fund – a £240 million

government programme aimed at the commercial deployment of hydrogen production projects across the UK – has been allocated to support the construction of these projects.

The announcement followed the successful conclusion of the government's first electrolytic hydrogen allocation round (HAR1) under its Hydrogen Production Business Model. The model is a mechanism intended to incentivise the production and use of low carbon hydrogen through the provision of revenue support to overcome the cost gap between low carbon hydrogen and higher-carbon fuels. The second Hydrogen Allocation Round (HAR2) is now open to applicants, with further rounds expected in 2025 and 2026.



Inside a PEM electrolyser, the catalyst coated membrane is comprised of platinum at the cathode and iridium at the anode

Successful HAR1 applicants include EDF Renewables' 'Tees Green Hydrogen' project on Teesside, a proposal to produce an initial 7.5 megawatts of green hydrogen using electrolysis powered by electricity from EDF's renewables portfolio. First production is expected in 2026.

A further recipient is the Cromarty Hydrogen project which is being jointly developed by Scottish Power and Storegga to decarbonise Scotland's whisky industry. First production is also expected in 2026, with Cromarty Hydrogen's Phase 1 having a 10.6-megawatt production capacity, producing close to 5,500 kg of green hydrogen every day using 100 per cent renewable power. Long-term production, through future phases, has the potential to rise to over 100,000 kg per day, for delivery to distilleries and other industrial and

transport sectors throughout the Inverness and Cromarty Firth region.

PEM projects

Outside of HAR1, other UK organisations are investing in green hydrogen to support decarbonisation goals. For example, also on Teesside, Protium is developing almost 70 megawatts of proton exchange membrane (PEM) electrolyser capacity.

Meanwhile, the University of Sheffield is set to produce more green hydrogen than any other UK research centre, having recently installed a PEM electrolyser from IMI Critical Engineering to enable its researchers to work with industry to produce, develop and test new hydrogen fuels.

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