



Hydrogen Strategy

August 2021

BEIS has published a Hydrogen Strategy setting out UK Government's plans for a low carbon hydrogen sector. The Strategy is a step forward for hydrogen policy, focussed on achievable actions and progress by 2030. Industry will hope to demonstrate to Government that even more ambitious goals can be achieved, if the right conditions for investment can be met.

Key highlights:

- 5GW hydrogen production by 2030.
- ~£900m in funding available across the hydrogen value chain.
- BEIS' early focus is on stimulating supply and demand. Progress on system integration and infrastructure expected later in the decade.
- 3 consultations issued, open until 25 October 2021:
 - Hydrogen Business Models (a CfD-type model is BEIS' preference),
 - Net Zero Hydrogen Fund, and
 - Low Carbon Hydrogen Standards.

Government has reaffirmed its target of achieving 5GW of hydrogen production in the UK by 2030

First unveiled in the *Ten Point Plan for a Green Industrial Revolution*, the UK's first Hydrogen Strategy reaffirms the ambition to deliver 5GW of hydrogen production by 2030.

BEIS' approach to supporting hydrogen production will be 'twin-track', with support for both 'blue' (CCUS-enabled) and 'green' (electrolytic) hydrogen production. To support deployment, BEIS plans to put in place:

- **£240m Net Zero Hydrogen Fund** for early production projects (delivered by 2024/25), and
- **£60m Low Carbon Hydrogen Supply 2 Competition** for novel hydrogen production (and storage) solutions.

BEIS has set out its minded-to-position on business models for hydrogen production. BEIS' favoured approach is a variable premium price support model (similar to the existing CfD structure for renewables). BEIS proposes a reference price for early projects that is equal to the higher of the natural gas or hydrogen sales price. As the market develops, this will transition to a market benchmark price for low carbon hydrogen. BEIS' proposal would provide volume support to producers through a sliding scale mechanism, which adjusts the price of hydrogen according to a producer's minimum economic return.

BEIS aims to scale up the hydrogen economy through a range of measures to stimulate hydrogen demand

Uptake of hydrogen technologies to improve the energy efficiency of industrial processes, and address industrial emissions, in sectors such as mining, cement, refineries, glass and lime will continue to be driven through:

- **£315m Industrial Energy Transformation Fund**,
- **£55m Industrial Fuel Switching 2 Competition**, and
- **£40m Red Diesel Replacement competition**.

Deployment of hydrogen in the transportation sector will continue to be supported through the package of measures set out in the Transport Decarbonisation Plan in July. Hydrogen technologies are eligible (alongside other technologies) for a share of £183m funding for transport decarbonisation, including in the road haulage, public transport, maritime and aviation sectors.

Trials for hydrogen heating are confirmed, with plans for a 'Hydrogen Neighbourhood' by 2023, a 'Hydrogen Village', by 2025, and a potential 'Hydrogen Town' by 2030.

Further consultations are planned in 2021 to inform future UK Government policy on industrial and residential hydrogen demand. These include:

- **Call for evidence on 'hydrogen-ready' industrial equipment**, and
- **Consultation on 'hydrogen-ready' boilers** by 2026.

BEIS will continue to develop the governance and structures needed to kick-start a market for hydrogen

Key reviews are to be conducted and published in 2022:

- **Assessment of the regulatory barriers** facing hydrogen projects,
- **Reviews of the legal and regulatory frameworks** required for hydrogen pipeline and hydrogen storage finance and ownership, and
- **Consultation on a UK standard for low carbon hydrogen** (open until 25 October 2021).

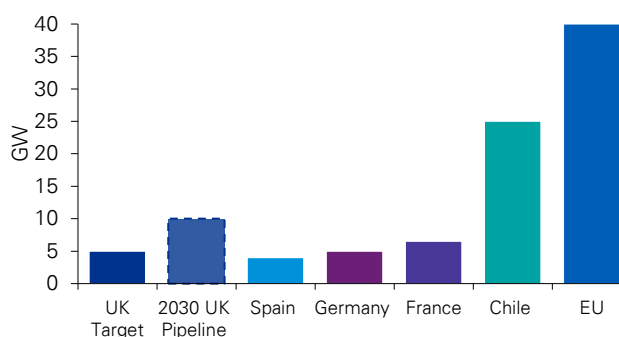
An indicative value for money assessment on blending of up to 20% hydrogen in the existing gas network is planned for 2022, to support a final policy decision in late 2023.

A Hydrogen Regulators Forum will be established – covering environmental, safety, markets, competition, and planning authorities – to coordinate regulatory changes needed to enable market development. A statutory body to oversee the sector is expected late in the 2020s.

While the Strategy itself is welcome and a positive step forwards, there are some areas where the industry would have wanted policymakers to go further.

- BEIS' 5GW of low carbon hydrogen production target may be seen as unambitious, given the scale of the Net Zero challenge. This target was first mooted in 2019 and announced in 2020, but the landscape has already shifted significantly since. New hydrogen project announcements are becoming increasingly frequent and the climate crisis becomes ever more urgent, so a 5GW production target looks modest – particularly compared to the ambition shown by other countries. Furthermore, the UK Government has announced five candidates for Phase-1 of its cluster sequencing programme, which combined would support 9.7GW of low-carbon hydrogen production by 2030 alone (see dashed bar on below right figure).
- The Strategy is very focused on the near-term and in laying the groundwork for the sector to expand post-2030. This is understandable, given the cost challenges and the need to maintain a degree of optionality, but there is a risk that the Strategy lacks the urgency to really stimulate progress in the sector and move from pilot projects to scale production. The types of major infrastructure projects required in future are hugely complex and require long lead times for investment, so clarity and ambition is needed now to deliver a hydrogen economy that can make a material contribution to Net Zero.
- The Strategy puts in place a useful framework and is helpful to guide the industry. UK Government will hope that the business model support for production will accelerate development of supply chains and help to achieve similar cost reductions to those seen in renewables and offshore wind under similar support mechanisms. However, the Strategy provides limited certainty for investors. The emerging detail of the business models will help to do this, but until these are finalised it will be challenging for the investor community to deploy meaningful capital where the long term mechanisms for return of and on that capital are unclear.
- BEIS' framework for hydrogen production looks to be more defined than in other areas, particularly on stimulating hydrogen demand or putting in place networks to facilitate hydrogen transport and storage to manage supply and demand fluctuations. BEIS' end use actions focus on engagement with users, on trials and on innovation/demonstration, while BEIS' key networks action is the launch of a Call for Evidence on the future of the gas system later this year. While it is important not to take policy decisions now which lock in undesirable future outcomes, progress looks slower in these areas than it should be to keep up with hydrogen production developments and to deliver Net Zero.
- There is a long list of commitments which form the bulk of what BEIS intend to achieve through this Strategy. Many of these relate either to existing funding programmes or to future consultations on developing policy – rather than concrete actions themselves. A key area of ongoing policy development is the Low Carbon Hydrogen Standard which is under consultation and due for decision next year. This will provide a key building block in the regulatory framework for this emerging sector, providing producers, equipment manufacturers and infrastructure operators with more clarity on future requirements.

2030 Hydrogen Targets



Conclusions

The recent IPCC report has brought the urgency of the climate crisis and the drive to Net Zero into sharp focus. Hydrogen technologies have an exciting role to play, but time is against us. Development of major infrastructure projects, supply chains and the skills to support these takes time, so the hydrogen sector needs impetus now.

In this context, direction, certainty and ambition in hydrogen policy is hugely important. The Hydrogen Strategy provides a clear policy foundation and will be welcomed by the sector, but questions remain as to whether it goes far enough and quickly enough to tackle the climate crisis. Potential deployment of hydrogen for residential heat, in particular, is being pushed out to later in the decade – putting pressure on the forthcoming UK Government Heat and Building Strategy to articulate the pathway to Net Zero in the residential heat sector.

Despite the progress to-date and the momentum we see across the market, this Strategy marks the start rather than the end of the journey. We await a number of key policy developments following this Strategy, including the sequencing of CCS support to the industrial clusters, finalisation of the low carbon hydrogen standard in 2022 and final hydrogen business models in 2022. The sector will be busy applying for funding opportunities available, including the Net Zero Hydrogen Fund in early 2022, as well as responding to a series of upcoming consultations – but we must not lose sight of the ultimate Net Zero goal, what it will take to get there and the ambition we need to show to make it a reality.

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