



Hydrogen UK

International Hydrogen Progress Index Hydrogen Networks

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ENA and Hydrogen UK International Hydrogen Progress Index

Benchmarking by ENA’s gas members and Hydrogen UK shows the UK falling behind in the global race for hydrogen investment

The UK made a mark on the global hydrogen economy when it published its Hydrogen Strategy in August 2021. The UK had firmly positioned itself towards the front of the pack due to an attractive package of measures for investors looking to produce and use low-carbon hydrogen. These measures included support for both green and blue hydrogen, a revenue support mechanism that was familiar to industry.

However, the international landscape has changed drastically since then, and the UK has fallen behind a number of countries. Despite a doubling of the production capacity target, and having the most mature portfolio of projects, the UK has been slow to finalise the policies and supporting mechanisms, with original timelines slipping and no major projects progressing to final investment decision (FID). Political change has not helped, affecting the trials and the timely passage of enabling legislation, as well as putting the governments’ net zero targets at risk.

In the meantime, other countries have implemented policy environments that offer more ambition, support and certainty for investors. The result is that the UK is now operating in a far more competitive international market, and at best is now considered to be at the ‘back of the leading pack’. The danger is that the UK will not be able to establish a robust domestic supply chain and be forced towards to the back of the queue with international suppliers, further slowing deployment and decarbonisation efforts, and missing out on the economic benefits on offer.

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Other countries have made bold and ambitious interventions in response to these opportunities – the UK must respond.

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MISSION ZERO
– Independent Review of Net Zero,
Rt Hon Chris Skidmore MP

Recommendations: ‘How to get the UK back to the front’

1.

Move faster and be more flexible with production support

2.

Identify and support strategic infrastructure investment now

3.

Give clarity on the minimum roles for hydrogen in industry, power, transport and heat, with support measures to make high-carbon expensive and low-carbon affordable

4.

Maximise the significant economic opportunity on offer by stimulating domestic supply chains

Our analysis

The below graphic is informed by joint Hydrogen UK/ENA analysis undertaken on hydrogen policy progress in a number of key countries across the globe, comparing the situation in August 2021 – the time of launch of the UK Hydrogen Strategy – with summer 2023. Each country was assessed and ranked against each other using metrics chosen across five categories: (i) strategy, (ii) supply, (iii) infrastructure, (iv) demand, and (v) standards. The output of this was used to produce an overall ranking of countries in each year. The results clearly show that the UK has slipped from its place as a ‘world leader’ in August 2021 to one of relative ‘back of the leading pack’ in 2023.

2021



- South Korea
- Germany
- France
- Japan
- Canada
- Spain
- Netherlands
- China
- USA
- Norway
- Australia
- Italy
- Chile
- India
- Saudi Arabia
- UAE

2023



- Germany 2↑
- USA 8↑
- Japan 2↑
- Canada 2↑
- South Korea 4↓
- Netherlands 2↑
- France 3↓
- Spain 2↓
- Italy 3↑
- Norway /
- Australia /
- India 2↑
- China 5↓
- Chile 1↓
- UAE 1↑
- Saudi Arabia 1↓

Note – the results produced are not a detailed economic analysis for investment decisions, but rather a way to compare the relative market attractiveness as a result of the respective governments’ actions in an increasingly competitive landscape.

Recommendations – ‘How to get the UK back to the front’

The following recommendations are from ENA’s gas members and Hydrogen UK.

1. Move faster and be more flexible with production support

As a matter of urgency, the government should put in place and legislate for investable production business models through passing the Energy Bill with a suitable revenue raising mechanism.

In an increasingly competitive international market, where higher levels of support are available now with far less complexity and uncertainty, government must not only adhere to advertised funding timelines. Government should also look to make application processes easier to navigate in order to maintain the UK’s advantage of a mature pipeline of projects, access to natural resources, and position as an international trading hub. Government should take an increased focus on deployment which will deliver scale and subsequent learning, rather than immediate value for money. First mover projects take on additional risks and establish supply chains, and government decision-making should move from ‘no/low regret’ to ‘acceptable risk’, reflective of the nascency of the hydrogen market. The government could help early hydrogen production projects to manage risk by making a positive decision on blending in the gas distribution networks in 2023. Government should also provide clarity on the timeline for a decision on blending into the transmission network, along with the strategic, economic and technical case for doing so.

Furthermore, government should use wider energy policy and market mechanisms to achieve the goal of a decarbonised grid delivering low-cost electricity, including to electrolysers producing green hydrogen, removing the burden from individual electrolytic producers. Measures to accelerate the pace of renewable electricity generation deployment and unlock imports and exports are needed to provide certainty for both producers and end users of hydrogen alike.

2. Identify and support strategic infrastructure investment now

Government must ensure that the recent focus on developing the support framework for hydrogen production is matched by rapidly developing similar support for hydrogen transportation.

This should include:

- Publishing a hydrogen transport and storage strategy, which clearly defines a roadmap for how critical infrastructure will be rolled out to support the government’s stated production targets and is ready to pass over to the FSO once the transition from ESO has been completed
- Developing interim measures for the first hydrogen pipeline projects in the Track-1 clusters to de-risk these investments in advance of the full Hydrogen Transportation and Storage business models
- Meeting the 2025 timeframe for implementing the first two Track-1 clusters and setting out a clear plan for getting the next two Track-2 clusters up and running by 2030

3. Give clarity on the minimum roles for hydrogen in industry, power, transport and heat, with support measures to make high-carbon expensive and low-carbon affordable

The UK Hydrogen Strategy should be updated to include targets for supply and demand in TWh rather than focus on production capacity (as per the CCC’s recommendation). This should underpin the existing 10 GW Hydrogen Production target by 2030 with clear demand sectors and geographical clarity that delivers against the government’s other decarbonisation commitments, e.g. a decarbonised power sector by 2035.

Government should activate a range of levers to enable and incentivise the use of hydrogen in sectors where the technology and market already exists (e.g. industry, surface transport) and provide additional support to those where hydrogen can play a part alongside electrification (e.g. maritime, aviation, long duration energy storage, domestic heat).

Both ‘carrots’ and ‘sticks’ should be used, with the overall aim of making high-carbon expensive at the same time as low-carbon affordable. Options include:

- Carbon contracts for difference (CCfDs)
- Mandatory targets for hydrogen consumption in critical sectors (e.g. steel)
- Re-investing ETS revenue directly into cost reductions for hydrogen end use applications and supporting domestic hydrogen supply chains
- Transport refuelling infrastructure targets and policies/funding for stimulating vehicle manufacture and deployment, with aggregation of demand across transport modes
- Defining the role for hydrogen-to-power (H2P) in the decarbonised electricity system of the future, and ensure that the relevant market frameworks are available
- Greater government direction on the rollout of heat decarbonisation, including clarity on how the 2026 hydrogen heating decision will be made and support for the necessary trials in advance of any decision

4. Maximise the significant economic opportunity on offer by stimulating domestic supply chains

The UK must establish a supply chain strategy now, including support for the future workforce, in order to maximise the significant economic benefits on offer from a robust domestic hydrogen supply chain. To compete globally, the UK must offer competitive incentives or risk leading manufacturers establishing production abroad. This support should include capital subsidies alongside other soft measures such as easing access to finance for emerging companies. Not only will this drive jobs growth and keep capital in the UK, but it will also aid deployment, preventing developers from being pushed to the back of the queue in international supply chains.



