



NEW ZEALAND  
FOREIGN AFFAIRS & TRADE  
Manatū Aorere

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# Low-carbon hydrogen in the UK

MARKET INTELLIGENCE REPORT

# Summary

- The Government of the United Kingdom sees low-carbon [1] hydrogen production as a driver of economic growth and a key component of its sustainable energy transition and its pathway to net zero. It is focused on positioning the UK as a global leader in the industry. The UK estimates its Hydrogen sector could be worth £900 million pounds by 2030, increasing to as much as £13 billion by 2050.
- In 2021, the UK Government published its Hydrogen Strategy, which set out its key priorities for the growth of the sector out to 2030 and beyond. Key policy areas for the UK currently include the phased roll out of the £240m Net Zero Hydrogen Fund to finance the development of new low-carbon hydrogen projects; the establishment of regional hydrogen industrial clusters; and designing a voluntary low-carbon hydrogen certification scheme.
- The UK's ongoing prioritisation of the hydrogen sector presents opportunities for New Zealand businesses and researchers involved in low-carbon hydrogen production and in sectors adjacent to it. Collaboration is already occurring, and the UK's Net Zero Hydrogen Fund current and future funding rounds could present opportunities for New Zealand businesses.

[1] The term “low-carbon Hydrogen” used in the UK generally comprises “green” hydrogen (produced via water electrolysis using renewable energy), and “blue” hydrogen (produced from natural gas with by-product CO<sub>2</sub> captured and stored).

# Report

*Prepared by the New Zealand High Commission in LONDON.*

## The Hydrogen Strategy

In August 2021, the UK released its first [Hydrogen Strategy](#). The Strategy sets out 9 strategic outcomes to be achieved by 2030:

- Progressing toward 5 gigawatts of low-carbon hydrogen production capacity with potential for rapid expansion post-2030;
- decarbonising the existing UK hydrogen supply (e.g. through carbon capture, utilisation and storage);
- lowering the cost of hydrogen production through technological innovation, learning from early projects, and developing more mature markets;
- building diverse end-user demand for hydrogen in the UK;
- increasing public awareness and acceptance of hydrogen across the energy system;
- promoting UK economic growth and opportunities and positing the UK as an international leader and attractive place for inward investment;
- reducing the UK's greenhouse gas emissions (under carbon budgets 4 and 5);
- establishing the hydrogen infrastructure, technologies, and regulatory and market frameworks that will be required to ramp-up production beyond 2030; and
- using an evidence-based approach to further policy development.

The strategy also commits the UK Government to publish half-yearly updates apprising industry and other stakeholders on how the actions outlined in the strategy are progressing – the [latest of which](#) was released in December 2022.

Since the Strategy's publication, the UK has doubled the ambition of its 2030 production goal from 5GW to 10GW - roughly 4% of the UK's current energy demand.[i]

In 2022, the UK established the £240m Net Zero Hydrogen Fund to finance the development of new low-carbon hydrogen projects. In March 2023, the UK Government announced the successful applicants from the first round of funding bids. These included several green hydrogen production projects, one blue hydrogen project using carbon capture technology, and two projects aimed at producing hydrogen for use in buses and light goods vehicles. Round two is currently open for funding bids (details below).

A key component of the UK's Hydrogen strategy is the establishment of hydrogen "clusters" – hubs for low-carbon hydrogen industries to base themselves in order to benefit from economies of scale, and proximity to intended end-user industries (e.g.

steel production). The UK intends for two of these clusters to be fully established by 2025: [HyNet](#) in the North West and the [East Coast Cluster](#) around Teeside and the Humber, with funding set-aside for projects in both clusters in the first round of the Net Zero Hydrogen Fund (see above). A further four clusters are intended to be established by 2030.[ii]

In February 2023, the UK announced its intent to establish a voluntary [low-carbon hydrogen certification scheme](#) by 2025 and launched a public consultation on the scheme. Certification is intended to support low-carbon hydrogen producers' corporate reporting on decarbonisation, eligibility for subsidy schemes, and access to low-carbon markets. The certification scheme is intended for use by both domestic hydrogen producers and international producers looking to import hydrogen products into the UK.

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## What are the intended uses for the UK's low-carbon hydrogen?

Low-carbon hydrogen products have a large variety of uses and potential end-users, but its key attraction is as an energy storage technology to help overcome the intermittency issues presented by most forms of renewable energy production. For example, when renewable energy is plentiful and demand is low, it can be converted into hydrogen via electrolyzers and then stored, and when renewable energy is scarce and demand is high, that stored hydrogen can be burned to increase supply.

Low-carbon hydrogen also presents an opportunity to decarbonise industrial processes which currently have few (if any) viable decarbonisation technologies. This includes industries such as steel, cement, petrochemicals, and transport in which low-carbon hydrogen can be used as both a feedstock and as fuel. The UK also expects to be in a position to export stored hydrogen at scale, particularly to Europe.

The UK Government is considering a proposal to begin blending low-carbon hydrogen with the natural gas supply (at a ratio of up to 20/80).[iii] Blending would reduce (albeit not substantially) the emissions associated with commercial and residential natural gas use, and it would help to stimulate demand for low-carbon hydrogen.

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## Opportunities for New Zealand businesses

The UK Government is intent on building the UK's low-carbon hydrogen sector into a global leader in support of meeting its emission reductions targets and boosting economic growth. The UK estimates its Hydrogen sector could be worth £900 million pounds by 2030, increasing to as much as £13 billion by 2050.[iv]

The UK's ongoing prioritisation of the sector presents opportunities for New Zealand

businesses and researchers involved directly in low-carbon hydrogen production, but also in sectors adjacent to it. This includes the renewable energy and carbon capture/storage sectors that feed into its viability, and companies operating in the hard to abate industries that will increasingly utilize low-carbon hydrogen products.

Collaboration is already occurring. Earlier this year, the Christchurch-based manufacturer Fabrum Solutions signed a manufacturing agreement with UK-based CPH2 to accelerate the roll-out of cutting edge electrolyzers across New Zealand and Australia.[v]

New Zealand is also a source of cutting-edge research on Hydrogen-related technologies. For example, in 2021, MBIE funded GNS Science to undertake a 6 year research programme looking at improving the efficiency of Hydrogen production via electrolysis.[vi]

The second round of the UK Net Zero Hydrogen Fund's funding competition is now open for applications for UK-based projects. The DEVEX strand will close 31 May 2023, and the CAPEX strand will close on 7 June. To be eligible, New Zealand businesses would need to be registered in the UK, and meet a range of project specific criteria [[available here](#) and [here](#)]. Alternatively, New Zealand businesses can collaborate on Net Zero Hydrogen Fund projects as non-funded partners without needing to be registered in the UK. This funding round is considering DEVEX requests between £80,000 and £10 million and CAPEX requests between £200,000 and £20 million.

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[i] <https://www.economist.com/britain/2022/07/25/britains-hydrogen-strategy-is-ambitious-if-imperfect>

[ii] <https://www.csis.org/analysis/united-kingdoms-hydrogen-strategy>

[iii] <https://www.ft.com/content/d9554964-7328-4ccb-86fc-7bf1b0a58193>

[iv] <https://www.csis.org/analysis/united-kingdoms-hydrogen-strategy>

[v] <https://fabrum.nz/fabrum-enters-a-manufacturing-agreement-with-cph2/>

[vi] <https://www.gns.cri.nz/news/additional-green-hydrogen-investment-powers-up-new-zealands-energy-future/>

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## External links

The following links may provide useful information to businesses:

[UK Hydrogen Strategy and updates to market Jul 2022 and Dec 2022](#)

[Net Zero Hydrogen Fund: Strand 1 Development Expenditure Round 2](#)

[Net Zero Hydrogen Fund: Strand 2 Capital Expenditure Round 2](#)

[UK Low Carbon Hydrogen Certification Scheme](#)

[Hynet Cluster](#)

[Humber Cluster](#)

[Teesside Cluster](#)

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