

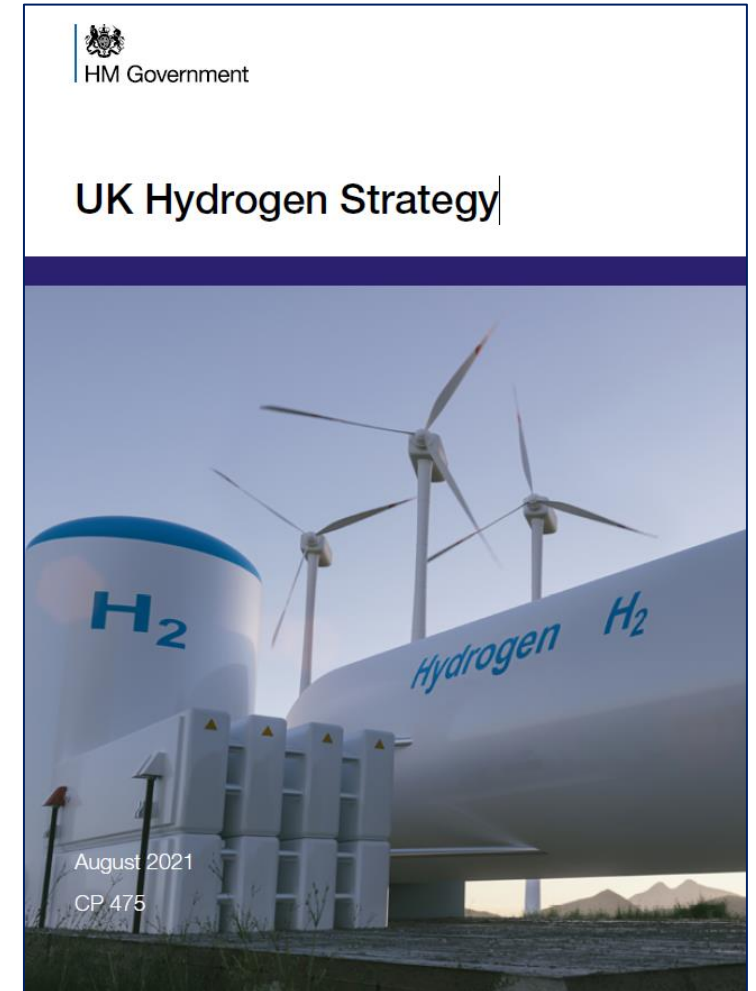
UK Hydrogen Strategy

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The role of hydrogen in net zero & the UK's energy transition

Low carbon hydrogen will be vital for UK energy security, economic growth and to meet our legally binding commitment to achieve net zero by 2050.

The case for hydrogen in the UK context



Low carbon hydrogen will be **critical for achieving net zero**, particularly in “hard to electrify” **UK industrial sectors**, and can provide flexible energy deployment across **heat, power and transport**.



The UK's geography, geology, infrastructure, innovation and expertise make it **well suited to rapidly developing low carbon hydrogen**.



The Government's ambition is for up to **10GW of low carbon hydrogen production capacity by 2030** with at least half coming from electrolytic hydrogen.



Beyond decarbonisation, we will harness economic opportunities from the outset – **12,000 UK jobs** & unlocking **£9bn investment**.

Why do we need to act now?

By 2050, low carbon hydrogen will be comparable in scale to existing electricity use in the UK – but there is **virtually no low carbon hydrogen production or use today**.

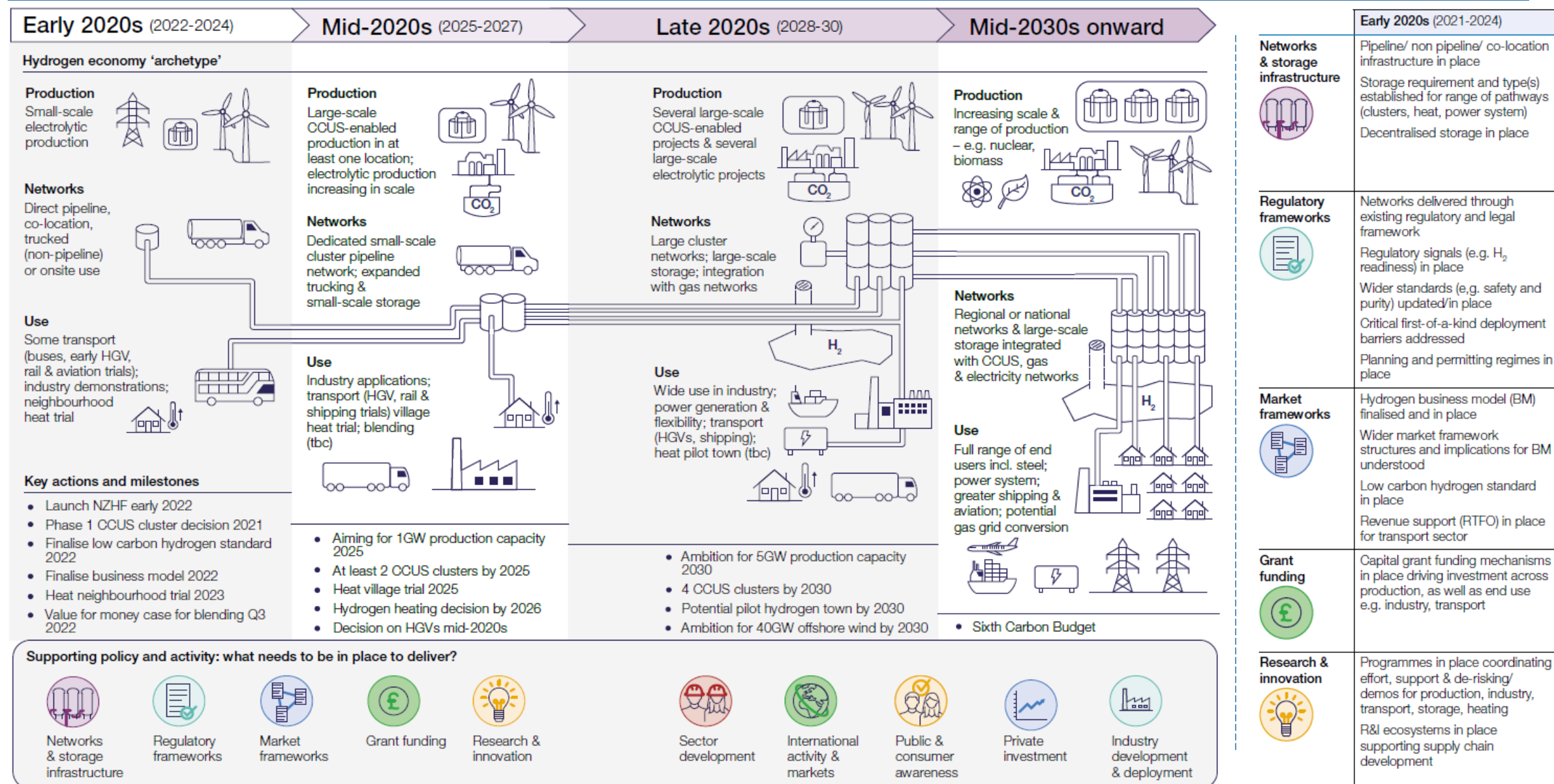
Figure 1.2: Hydrogen demand and proportion of final energy consumption in 2050



% = hydrogen as proportion of total energy consumption in 2050

Source: Central range – illustrative net zero consistent scenarios in CB6 Impact Assessment. Full range – based on whole range from UK Hydrogen Strategy Analytical Annex. Final energy consumption from ECUK (2019).

UK hydrogen economy roadmap: government & industry taking a whole-system approach



UK Context: Production and use of hydrogen

Production

The UK is supporting multiple production routes, including both electrolytic & CCUS-enabled hydrogen, to meet our stretching ambitions.

The Energy Security Strategy increases the Government's ambition to have **up to 10GW of UK low carbon hydrogen production capacity by 2030.**

Key commitments

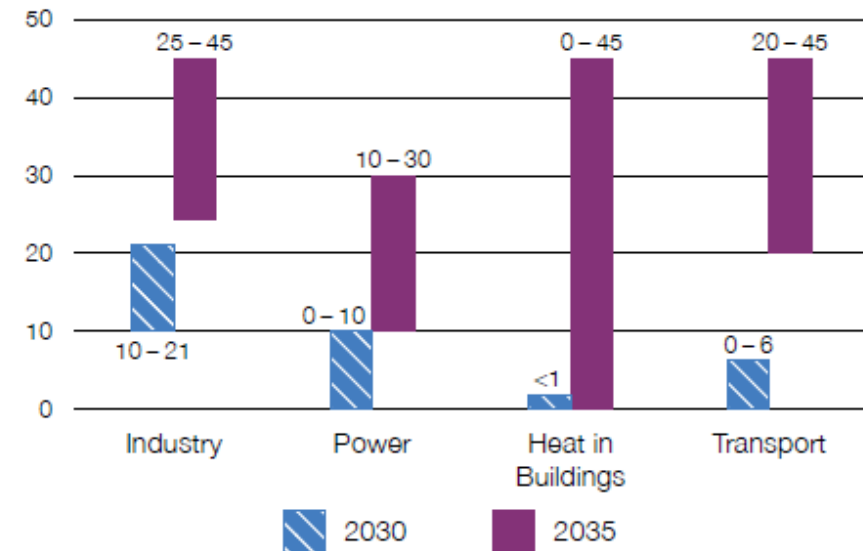
- ✓ Launched **£240m Net Zero Hydrogen Fund (NZHF)** for co-investment in early hydrogen production projects
- ✓ Finalise **hydrogen production business model** (HPBM) in 2022, enabling first contracts to be allocated from Q1 2023
- ✓ Launched **UK standard for low carbon hydrogen** (LCHS)

Hydrogen Demand

Our analysis suggest **potential hydrogen demand of up to 38TWh by 2030** split across sectors (not incl. gas blending).

This could rise to **55-165TWh** by 2035 under CB6.

Figure 2.4: Illustrative hydrogen demand in 2030 and 2035



Source: BEIS analysis (see analytical annex). Note: figures do not include blending into the gas grid.

UK Context: Networks & markets, sector development and international

Hydrogen networks & storage

Need to see significant development and scale up of hydrogen **network and storage infrastructure** over the 2020s (*even if* hydrogen is not widely used for heat in buildings). Needs to be **integrated** into evolving gas, electricity and CCUS networks.

Creating a low carbon hydrogen market

The development and scaling up of a hydrogen economy will also rest on **market & regulatory frameworks** to support the early expansion and later evolution of a low carbon hydrogen market.



Promoting economic opportunities

Low carbon hydrogen economy could **support 12,000 UK jobs and unlocking £9bn in investment by 2030.**

The Hydrogen Sector Development Action Plan, published in July 2022, focuses actions in key areas: investment; supply chains; jobs and skills; and trade and exports.

Promoting international partnership

The UK will support hydrogen collaboration & cooperation – to accelerate innovation & deployment of technologies to **increase supply** ‘push’ & **incentivise demand** ‘pull’.

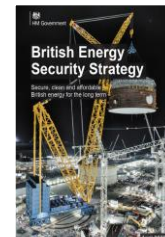
The strategy outlines the UK’s active role in **multilateral** collaboration on hydrogen, including through the MI Clean Hydrogen Mission, CEM Hydrogen Initiative & IPHE.

UK has an active role in **multilateral** collaboration on hydrogen and is also open to opportunities for **bilateral & regional collaboration** to spur development of thriving domestic, regional & international markets.

Policy developments since August 2021

Since publication of the UK Hydrogen Strategy we have continued to deliver on our commitments, setting out new policy and funding across the value chain, and bringing together the international community around shared hydrogen objectives to rapidly develop a global hydrogen economy, including through:

- ✓ Net Zero Strategy (October 2021)
- ✓ Cluster Sequencing (October 2021 and August 2022)
- ✓ COP26 (October - November 2021)
- ✓ British Energy Security Strategy (April 2022)
- ✓ Hydrogen Investment Package (April 2022)
 - ✓ Hydrogen Investor Roadmap
 - ✓ Responses to NZHF, HPBM and LCHS consultations; first two strands of NZHF opened shortly after
 - ✓ Indicative Heads of Terms of HPBM published
- ✓ July Hydrogen Package (July 2022)
 - ✓ Announcement of the UK's Hydrogen Champion
 - ✓ First Electrolytic Hydrogen Allocation Round (offering joint NZHF/HPBM support)
 - ✓ Hydrogen Sector Development Action Plan
- ✓ July Hydrogen Package (July 2022) contd.
 - ✓ Hydrogen Strategy update to the market: July 2022
- ✓ Hydrogen transport and storage infrastructure consultation (August 2022)
- ✓ December Hydrogen Moment (December 2022)
 - ✓ Heads of Terms for the HPBM contract published
 - ✓ Consultation on improving boiler standards and efficiency
 - ✓ An external research study and a summary of responses to our Call for Evidence on hydrogen-ready industrial boiler equipment
 - ✓ Independent study on hydrogen infrastructure requirements
 - ✓ Hydrogen Strategy update to the market: December 2022



Next steps: delivering the UK Hydrogen Strategy & roadmap

