



All Party Parliamentary Group on

**Hydrogen**

# Business Fair Exhibitor Case Study Briefing

This report was developed by Connect as Secretariat of the APPG on Hydrogen. This is not an official publication of the House of Commons or House of Lords. It has not been approved by either House or its committees. All-Party Parliamentary Groups are informal groups of members of both Houses with a common interest in particular issues. The views expressed in this report are those of the Group.

The APPG on Hydrogen is chaired by Tom Collins, MP for Worcester, and has more than 35 parliamentary members across both Houses and all major political parties. It provides a forum for MPs and Peers to engage with leading businesses and organisations that are enabling the UK to meet its decarbonisation targets through the implementation of hydrogen projects, and to discuss policy options to support these.

The Group also focuses on raising awareness of, and building support for large scale hydrogen projects, due to the potential to:

1

**Enable the UK to meet its net-zero targets**

2

**Create hundreds of thousands of well-paying, stable jobs**

3

**Unlock innovation across many sectors, including transport and heavy industry**

4

**Establish the UK as a global leader in hydrogen technology**

The work of the APPG is supported by industry leaders across the energy and research and development (R&D) sectors to facilitate production and adoption of hydrogen.

This briefing includes case studies of the innovation taking place across the UK to enhance the hydrogen economy, deliver growth and reach net-zero.



**Tom Collins MP**  
Chair of the APPG on Hydrogen

# centrica

**Centrica has a range of innovative hydrogen projects delivering jobs and growth across the Humber, linked through the planned Humber Hydrogen Pipeline.**

The Humber region is central to the UK's energy system, hosting significant generation assets, offshore wind capacity and the majority of the nation's geological energy storage. Recognising its strategic importance, Centrica, alongside partners National Gas, Equinor and SSE, are advancing the Humber Hydrogen Pipeline, an integrated transport and storage network linking production sites at Easington, Saltend and Aldbrough with industrial users, unlocking billions in investment while supporting skilled job creation across the region.

At the heart of Centrica's hydrogen vision in the Humber is H2H Easington, a flagship low-carbon hydrogen hub being developed by Centrica and Equinor. With the potential to deliver up to 2.2GW of green and blue hydrogen, Easington will play a vital role in decarbonising key industries such as steel, while maintaining energy security and enabling the transition to a cleaner, more flexible energy system.

Supporting this are a series of pioneering projects, demonstrating hydrogen's real-world impact. Trials at Brigg Energy Park late last year, advanced hydrogen blending and hydrogen-to-power generation, while hydrogen production planned at Singleton Birch will help to decarbonise lime manufacturing, an essential input to steel production.

Alongside an innovative hydrogen storage project being developed at Knapton, longer term, it is envisaged that Rough Gas Storage could become a more responsive, seasonal storage asset, able to store larger volumes of hydrogen (16TWh - equivalent to 80,000 grid sized batteries) to meet seasonal energy needs during longer cold, windless spells during winter. Together, these initiatives showcase a coordinated approach to building a resilient hydrogen economy, reinforcing the Humber's position as the UK's hydrogen heartland.





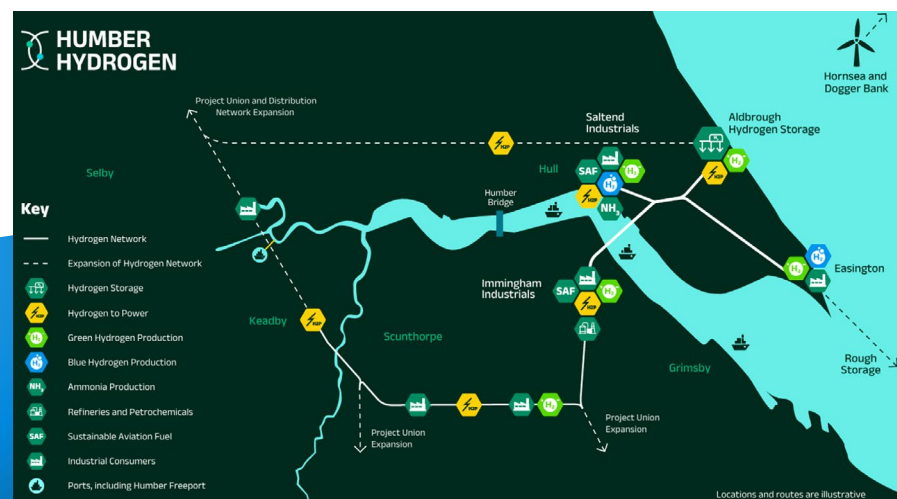
Equinor has been a leading energy partner to the United Kingdom for over 40 years.

We support the UK's energy security, economic growth and net zero ambitions. Equinor provides 38% of the UK's gas and 19% of its oil, and is advancing the energy transition by investing in offshore wind, carbon capture and storage (CCS), hydrogen, flexible power generation and battery storage. The company is behind pioneering projects such as Hywind Scotland, the world's first floating wind farm, and Dogger Bank, which will become the world's largest offshore wind farm.

Equinor works closely with the UK and devolved Governments to deliver secure, reliable, and low-carbon energy, creating jobs and fostering innovation for a sustainable and prosperous future. Equinor holds a 50% stake in Adura, one of the UK North Sea's largest independent oil and gas producers, as well as a number of cross-border oil and gas fields with Norway.

In our work to advance the energy transition, Equinor is developing a full value chain of hydrogen projects in the Humber including CCUS-enabled and electrolytic hydrogen production (H2H Saltend and Aldbrough Hydrogen Pathfinder), hydrogen transport and storage (Humber Hydrogen Pipeline and Aldbrough Hydrogen Storage) as well as hydrogen to power (Keadby Next Generation).

The Humber is one of the UK's leading industrial regions and the single largest emitting industrial cluster in the UK. Alongside our partners Centrica, National Gas and SSE Thermal, we are part of the Humber Hydrogen partnership, and we recognise that the Humber's rich history as an existing industrial and energy hub makes this the ideal place to deploy hydrogen at scale with the value this can bring locally.



FOUR ZEROS ENERGY

Four Zeros Energy is an independent UK green hydrogen developer, founded by a team with over 50 years of combined experience in energy infrastructure — from project origination and market development through to financing and delivery.

The team have led projects through Hydrogen Allocation Round (HAR) 1 and HAR2, building a replicable green hydrogen platform focused on decarbonising the high-heat industrial processes that cannot be electrified directly, and where green hydrogen offers the most credible pathway to net-zero.

Our approach is grounded in commercial realism. We identify projects where there is a clear, proximate industrial off-taker for green hydrogen, access to renewable electricity, and a viable route to financial close — and we develop them to bankable standard.

As projects scale over time, we expect a shift towards injection of hydrogen into dedicated pipeline networks and use in the production of low-carbon fuels derived from hydrogen.

### St Austell Green Hydrogen project

Our St Austell Green Hydrogen project in Cornwall — shortlisted for HAR2 award by UK Governments — is our flagship project.

The proposed project will produce green hydrogen for Imerys and other local industrial companies. The green hydrogen will be produced by electrolysis, using renewable electricity and water - displacing carbon intensive natural gas currently used in some industrial processes. The green hydrogen facility is sited on land adjacent to the Imerys site, between Central Treviscoe and Little Treviscoe, north of St Austell.

### At a glance:

- 20 MW production capacity
- Around 2,000 tonnes of green hydrogen produced per year
- Hydrogen delivered by low pressure pipeline
- Utilising 6m3 of water/hour equivalent to the daily consumption of 12 households
- Potential to reduce CO<sub>2</sub> by up to 15,000 tonnes annually
- Subject to planning and finance, Hydrogen SAGH to start operations in 2028



FZE's 20 MW St Austell Green Hydrogen Project Shortlisted in HAR2

Beyond Cornwall, we are actively developing further projects targeting hard-to-abate industrial sectors across the UK, applying the same proven development model to new sites and new offtake opportunities.

# HyNet

**HyNet is the country's leading decarbonisation cluster. Three projects, worth over £3 billion in total, are currently under construction and already driving benefit through the supply chain. Many more are set to follow, delivering economic growth and the Industrial Strategy.**

HyNet's hydrogen system will connect companies employing over 10,000 people, producing essential products such as salt, glass and fuels, and generating reliable low-carbon power for homes and businesses. The North West's low-carbon infrastructure is already stimulating development of new sectors, such as sustainable aviation fuels directly connected to Manchester Airport, with HyNet ensuring local people benefit with skills programmes and outreach touching 8,000 to-date.

Cadent's HyNet Hydrogen Pipeline is anchored by Storengy's HyKeuper storage project. With its shallow depth and therefore lower pressure, this storage is a cost-efficient driver of energy security, having a capacity 14-times greater than current pumped-hydrogen and battery capacity combined.

RWE's network-connected electrolytic project will maximise the value of homegrown renewables, whilst EET Hydrogen's Production Plants can take advantage of the in-construction Liverpool Bay CCS project, giving HyNet low average cost hydrogen. ESB's 880 MW Carrington Power Station powers around 1 million homes, and when combined with distributed dispatchable generation, HyNet can provide 50% or more of the Clean Power 2030 requirement. Together, these projects will generate around 3,000 jobs during build.



## **Research England Hydrogen Innovation Project (REHIP) Innovation Project (REHIP)**

The £16.4 million Net Zero Industry Innovation Centre (NZIIC) at Teesside University is an award-winning, thriving hub of innovation at the forefront of cutting-edge research. It drives the development and implementation of transformative net zero technologies and strategies across a range of industrial sectors. Our innovative research spans a wide range of net zero and emerging technologies, from artificial intelligence and digital twins to hydrogen innovation, carbon capture and the circular economy. Our work supports businesses in developing and scaling new technologies that drive sustainability and competitiveness.

The Research England Hydrogen Innovation Project, a pioneering collaboration between Teesside University and Durham University, aimed at catalysing the decarbonisation and advancement of hydrogen technologies in the Tees Valley. This four year, £11m, initiative leverages the combined strengths of our institutions to drive innovation, research, and capacity building in the

region. The project has obtained £4.8m from Research England and recruited 14 Research Fellows who collaborate closely with businesses, delving into industrial research and innovation initiatives through 22 funded projects. So far, a total of 33 SMEs, large organisations and public bodies have been supported through the project.

Drawing on evidence from engagement with stakeholders and policy makers on understanding of a just transition, a study examining options for advancing a low carbon commercial transport system in the Tees Valley region has been completed. The project highlighted both the opportunities and challenges facing hydrogen deployment in the UK and a White Paper has been published and can be found on the project website [www.rehip.co.uk](http://www.rehip.co.uk).

A second White Paper published has focused on the key risks and opportunities facing the North East. The paper captures those insights and community-based data with five hydrogen strategy recommendations.





**Uniper is a European energy company with global reach and operations in more than 40 countries. With around 7,000 employees, the company plays a central role in ensuring a secure energy supply in Europe – particularly in its core markets of Germany, the United Kingdom, Sweden, and the Netherlands. With 18.5 gigawatts of power generation capacity, Uniper is the backbone of reliable electricity production.**

Through investments in renewable energy, hydrogen, and other low-carbon energy carriers, Uniper is also driving the transformation of the energy system. In the UK, Uniper owns and operates a flexible generation portfolio of six power stations, a fast-cycle gas storage facility, two high pressure gas pipelines, and regasification capacity at the Grain LNG terminal in Kent. We're also progressing CCS and hydrogen projects, and expanding our onshore wind and solar portfolio, to further support energy security in the UK.

### Humber H2ub® (Green) project

The Humber H2ub® (Green) project is a proposed low carbon hydrogen production facility at Uniper's Killingholme site. It would include electrolytic (green) hydrogen production capability, which meets the UK Low Carbon Hydrogen Standard, with an initial capacity of up to 120MW and potential future expansion of a further 200MW+.

In March 2024, Uniper and Phillips 66 Limited signed a collaboration agreement to work together towards a supply of electrolytic (green) hydrogen from the Humber H2ub® (Green) project to Phillips 66 Limited's Humber Refinery. The hydrogen would be used to replace some refinery fuel gas in industrial scale fired heaters as part of Phillips 66 Limited's plans to reduce Humber Refinery's scope 1 operational emissions.

#### The project could:

- Support up to 260 jobs during construction, of which 110 are expected to be on site
- Create approximately 13 permanent operational roles and support over 100 additional jobs across the region and wider UK, associated with its maintenance and electricity supply
- Help support the decarbonisation of industry in the Humber region.

In April 2025, the Humber H2ub® (Green) project was shortlisted in Hydrogen Allocation Round 2.



### Salinae Hydrogen Storage Project

Uniper is exploring the potential to develop a salt cavern hydrogen storage facility, near Warmingham in Cheshire, known as the Salinae Hydrogen Storage project.

Uniper is working on the Salinae Hydrogen Storage project with British Salt who own the mineral rights and whose existing operations are on the site.

The site has the potential to store up to 400GWh of hydrogen across up to 13 caverns. This could help to provide confidence for industries looking to fuel switch to hydrogen and away from fossil fuels, by providing a reliable source of hydrogen, complementing other sources.

We are also exploring the potential to include hydrogen production capability as part of the Salinae Hydrogen Storage project. This would likely include up to 50MW electrolytic (green) hydrogen production, directly connected to the proposed storage facility.

The development of a hydrogen storage facility could create opportunities during the construction phase and once it becomes operational, provide permanent jobs as well as helping to safeguard jobs in the wider area.

The project will be subject to Uniper securing a Development Consent Order (DCO) for a hydrogen facility. A public consultation is planned for early 2027, with the DCO submission later in the year.

In the absence of a hydrogen market, and as a precursor to a competitive market framework, Uniper will also need the UK Government to develop a bespoke business model to bring forward this technology.



**Valterra Platinum is one of the world's leading integrated producers of platinum group metals (PGMs) with a primary listing on the Johannesburg Stock Exchange and a secondary listing on the London Stock Exchange.**

We operate world class, long-life mines and the industry's most efficient processing assets, responsibly mining, smelting, and refining PGMs and associated co-products from operations located in South Africa and Zimbabwe. With integrated marketing hubs in London, Singapore and Shanghai, we deliver tailored solutions for our customers

PGMs are important to the global energy transition and are essential to a growing hydrogen energy economy, be that through electrolyzers or hydrogen fuel cells. We have been an early supporter of the development of the hydrogen economy recognising its potential in enabling a shift to a greener energy mix.

As part of our support for hydrogen, we are pioneering several global initiatives, including launching fuel-cell electric vehicle deployment schemes in Germany, China and South Africa. We have previously co-funded the deployment of hydrogen refueling stations in the UK.

As a founding member of the Hydrogen Council, International Hydrogen Fuel Cell Association and the Fuel Cell Vehicle Congress in China, we invest in funds and companies who focus on hydrogen and its role in decarbonising energy.

We are proud investors in Supercritical, a high efficiency electrolyser startup - a technology capable of unlocking the true potential of hydrogen in the energy transition.



Founded in London in 2020, Supercritical is a pioneering UK technology innovator designing and manufacturing next-generation, high-pressure electrolyzers engineered to radically accelerate the transition away from fossil fuels. Supercritical's mission to unlock the clean energy economy has attracted major global backing, including strategic investment from Valtterra Platinum.

#### Membrane-Free, 220-Bar Electrolysis

Supercritical's patented technology overcomes the key mechanical vulnerabilities of traditional green hydrogen systems. By utilising a unique membrane-free, PFAS-free, and iridium-free design, Supercritical eliminates the frequent "cliff-edge" component failures that typically disrupt production. The system outputs hydrogen up to an ultra-high 220 bar of pressure. By delivering gas at this uniquely high pressure directly from the source, the technology removes the need for expensive multi-stage mechanical compressors, slashing both initial capital outlay (capex) and long-term operating costs (opex).

#### Decarbonising Urban Transport in Berlin

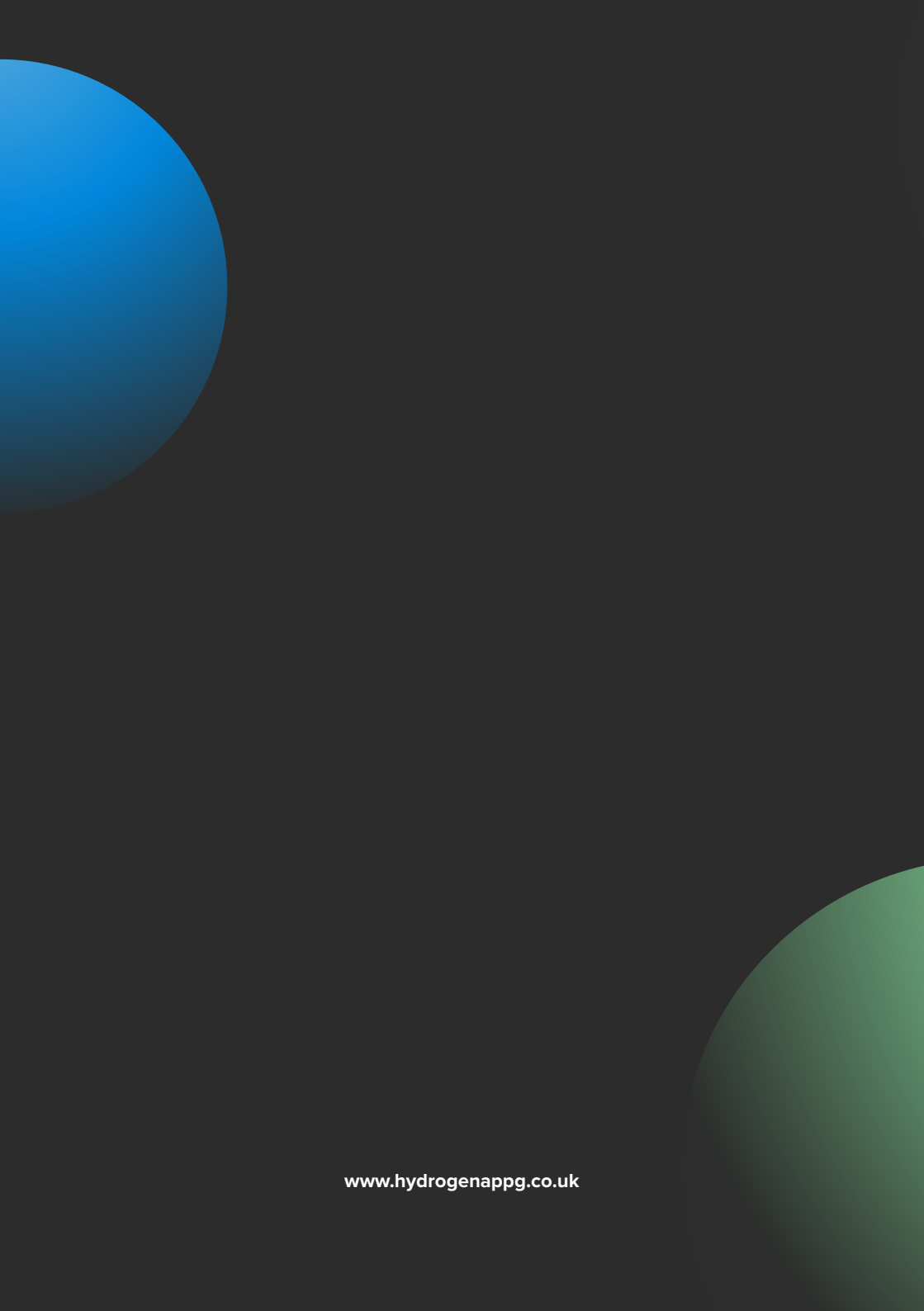
Moving from theory to real-world test beds, Valtterra and Supercritical have launched a joint pre-feasibility study targeting the decarbonisation of Berlin's commercial transit sector. The project assesses the deployment of Supercritical's advanced electrolyzers to provide on-site green hydrogen refueling for a fleet of fuel cell

electric vehicle (FCEV) taxis. By co-locating hydrogen production directly at the refueling infrastructure, the project eliminates costly transport and supply chain bottlenecks to establish a highly resilient, cost-effective blueprint for international urban mobility.

#### Powering the UK Hydrogen Economy

While validating technology abroad, this partnership is a major engine for the UK's domestic green economy. Supercritical has rapidly scaled its team to 45 specialised experts across two strategic hubs: its London headquarters and its advanced demonstration and testing facility in Teesside. Situated in the heart of the UK's premier industrial net-zero cluster, this footprint directly supports high-value engineering jobs and regional supply chains. By scaling these home-grown manufacturing capabilities, Supercritical and Valtterra are directly advancing the UK's ambition to unlock over 12,000 hydrogen jobs and secure a world-leading position in the global clean energy transition.





[www.hydrogenappg.co.uk](http://www.hydrogenappg.co.uk)