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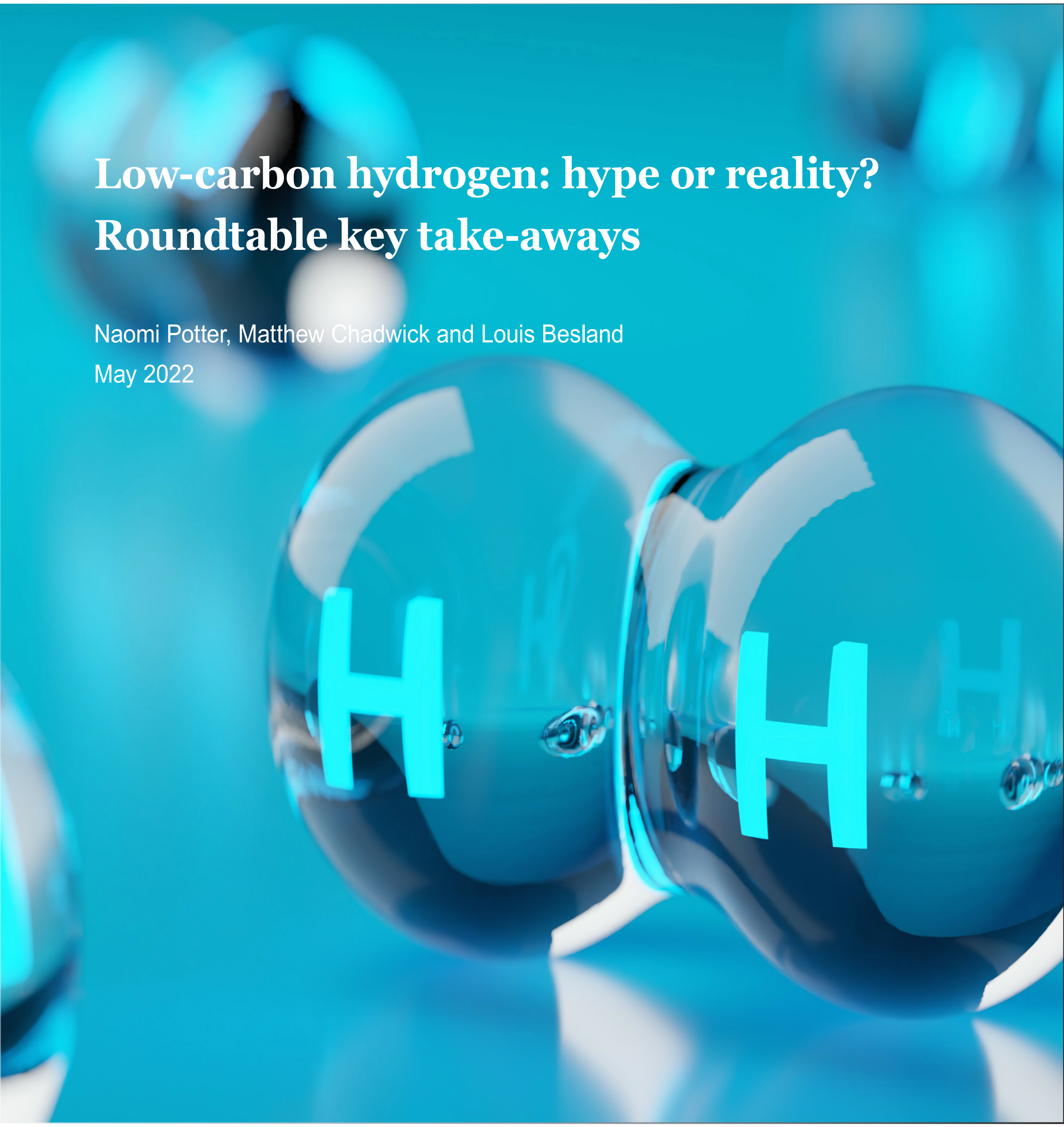

Low-carbon hydrogen: hype or reality? Roundtable key take-aways

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Recent announcements from the UK Government have made it clear that the role for low-carbon hydrogen in the UK energy system is set to increase rapidly across the next decade. There was significant focus on low-carbon hydrogen in the Energy Security Strategy, including the doubling of the hydrogen capacity target to 10GW. Hence, there is great momentum at present in the UK for this technology, and it is critical now that we identify and consider key obstacles and timeframes as the market develops.

Our roundtable on low-carbon hydrogen, held on the 5 May 2022, sought to explore such issues. The event was hosted by Cornwall Insight and Heidrick & Struggles and chaired by Laura Sandys CBE. It brought together key market participants in the UK hydrogen economy to discuss common issues and the pathways required to deliver low-carbon hydrogen.

Uncertainties ahead

Currently, major issues facing the development of the UK low-carbon hydrogen industry include the high cost of hydrogen production, the availability of alternative low-carbon options and the lack of certainty from government policy. Whilst there is strong demand for low-carbon hydrogen in industries where chemical combustion is an integral process, other sectors (e.g., transport and domestic heating) have cheaper and more cost-effective options for decarbonising. However, it is likely that low-carbon hydrogen will still present an important option for sectors like domestic heating, alongside alternatives like heat pumps, especially in regions proximal to hydrogen production sites, and for heavy good vehicles (HGVs).

- What is needed to unlock the barrier?

At present, UK Government policy lacks certainty on where low-carbon hydrogen will be required. Firmer commitments and hard targets would help to push the UK low-carbon hydrogen industry forward at this early but critical stage of development.

Concerns around development timeframes

High supply chain procurement times (over 12 months) make it difficult for low-carbon hydrogen producers to match up supply and demand, with hydrogen production needing to start well in advance of establishing the end-user demand. This supply-demand mismatch limits the ability of producers to confidently scale-up or finance their assets. Moreover, there are concerns that the timing of government business models may end up being out of step with broader capacity and infrastructure installation milestones.

- What is needed to unlock the barrier?

With regards to balancing out supply and demand timeframes it is clear that a holistic and integrated approach is required, with both supply and demand considered in tandem. Industrial clusters could play an important role in this, as their demand is better known and easier to predict in advance.

Meanwhile, a key question we need to ask ourselves now from a policy perspective is when do business models need to take effect, if we are to reach our overarching 2030 target of 10GW built capacity?

Competition with the global market

The global demand for low-carbon hydrogen is largely influenced by two factors: the competitiveness of hydrogen against other low-carbon energy alternatives and the diversity of end-user sectors in the individual countries. Other global low-carbon hydrogen producers (e.g., large solar installations in the Middle East and North Africa) can relatively easily scale-up. Therefore, imported hydrogen from these areas looks set to outcompete UK domestic hydrogen production for the larger demand industries, unless the UK Government moves faster on business models and integrated policy.

- What is needed to unlock the barrier?

The establishment of a taskforce to reduce costs across the supply chain, including coordinating across the need for sufficient transport and storage could help the UK remain competitive. This would be similar to what has already happened for UK offshore wind, although greater focus would be needed on creating jobs for the UK workforce. This contrasts with offshore wind, where the significant investment and expanded capacity did not create enough jobs domestically.

UK low-carbon hydrogen outlook

Going forward, industrial clusters will be crucial in the development of the UK low-carbon hydrogen economy because supply and demand can be more easily matched in these areas. The introduction of 20% blending into the gas network would also help to increase predictability of demand and encourage the ramping up of supply. Outside of these, business models and integrated policy are key to generating future investment. The leading focus of future scenario forecasts on “electrification” of the UK energy system often squeezes hydrogen out of the picture, and so more emphasis is required on developing a hydrogen economy to promote investment. Hydrogen is currently viewed as playing only a “niche” role in the future energy generation mix, due in part to its low net present value compared to other low-carbon investments. However, hydrogen offers extra resilience at the system level and there is enthusiasm and demand for its adoption across a range of UK sectors, if the appropriate business models and policy commitments are in place.

About Cornwall Insight and Heidrick and Struggles

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Getting to grips with the intricacies embedded in energy markets can be a daunting task. There is a wealth of information online to help you keep up-to-date with the latest developments, but finding what you are looking for and understanding the impact for your business can be tough. That’s where Cornwall Insight comes in, providing independent and objective expertise.

For more information about our services, please visit our website www.cornwall-insight.com.

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HEIDRICK & STRUGGLES

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