

HYDROGEN AND STORAGE



Date	Monday 22 nd May
Time	16:00-17:00
Venue	Committee Room 20, Upper Committee Corridor, House of Commons
Chair	Alexander Stafford MP , Chairman of the APPG on Hydrogen
Speakers	<ul style="list-style-type: none">• Jeremy Brutus, Head of Hydrogen Networks Strategy and Regulations, Department for Energy Security and Net Zero• Ruth Herbert, CEO, CCS Association• Jake Tudge, Director of Corporate Affairs, National Gas• Luke Sperring, CTO and Co-Founder, H2GO Power• Sarah Kimpton, Vice President, DNV Services
Theme/ Background information	This session will examine the need for a UK Energy Storage Strategy, and how different forms of storage can be utilised to capitalise on the UK's potential for hydrogen production.
Background Information for the Chair	<p>The APPG on Hydrogen is chaired by Alexander Stafford, MP for Rother Valley. The APPG has a total of 18 parliamentary members. It provides a forum for MPs and Peers to engage with leading businesses and organisations to work to enable the UK to meet its decarbonisation targets through the implementation of hydrogen projects and discuss policy options to support these.</p> <p>The APPG's sponsors are Baxi, Bosch, Cadent, EDF, Energy and Utilities Alliance, Equinor, Johnson Matthey, National Grid, Northern Gas Networks, SGN and Shell.</p> <p>The Hydrogen APPG believes that the UK has the potential to become a global leader in low-carbon hydrogen technology, but that the UK must move fast to grasp this opportunity and achieve the maximum economic benefits. The APPG also favours a twin-track approach between blue and green hydrogen, as they believe blue will help in the transition.</p>

Alexander Stafford MP formally opened the meeting and introduced the topic of 'Hydrogen Storage' as one of national importance because of its implication in energy security and sovereignty. He introduced **Ruth Herbert, CEO, CCS Association**.

Ruth Herbert introduced the **Carbon Capture and Storage (CCS) Association** who have over a hundred active members, working in the deployment of hydrogen and hydrogen services. She highlighted how the CCSA has focused on preparations for net zero by 2030, since the strategy

was originally published, particularly on two main clusters in the North East and North West of England. She stated that they had to focus on how to create a new sector for the UK and focus on deployment plans that have worked across the world. One key area of interest for growth she highlighted is mature transport storage networks which need to be looked at on the same time scale as CO2 transport and storage networks.

She stated that there needs to be symbiotic thinking and to enable this, CCSA have been looking at how the government can accelerate the work on the hydrogen and business model, as capture projects have really focused on CO2 storage but not on hydrogen. She pointed out that this was way the work on hydrogen is behind the work on the other business models, yet the two inevitably rely on each other. She argued that 2025 is too late for that business model to start to be thought about but recognises that there are complex factors the decision-making process. She concluded that it's essential to scale up renewables and that interim measures are needed to provide a short-term investable network that can feed into the clusters, adding that this has to be a no-regrets decision.

Alexander Stafford thanked **Ruth Herbert** and introduced **Jake Tudge, Director of Corporate Affairs, National Gas.**

Jake Tudge introduced himself and his role at **National Gas**, he also introduced the work that they do and their network of pipelines. He highlighted the seismic scale of gas reliance in the UK, stating that National Gas own and operate the 8000 kilometres of high-pressure pipeline that traverses the UK, supplying power to industry and to eight major storage sites across the UK. He added that eight times the amount of energy goes through our system than the power grid.

He spoke about the state of storage across the EU and the UK, noting that 56% of the storage owner by National Gas is full, and that this was a healthy position to be in with regards to energy security. He argues that the UK has a fantastic ability to store hydrogen because of its geology and that this needed to be optimised because it would be the cheapest way to run an energy system over the long term. He spoke about the need for energy systems to be interconnected, to ensure maximum efficiency and security.

He explained that modelling shows that a system without gas requires wind to produce at least 5kW/hour/day which is practically impossible. He added that hydrogen requires long and short-term storage with big high-pressure pipes to connect it all. He spoke about the governments timeline to make a decision on heat in 2026 – but called on them to work on infrastructure this date. He called for business models which would help set confidence to ensure that there is proper demand for hydrogen and would demonstrate its security, resilience, and value.

Alexander Stafford thanked **Jake Tudge** and introduced **Luke Sperring, CTO and Co-Founder, H2GO Power.**

Luke introduced **H2GO** as a technology company that was set up about 9 years ago. He stated that storage is often an overlooked field, as the sector is focused on production and use, but not storage. He stated that the UK has have huge amounts of cabin storage, but that this needs to be supported with above ground storage. He added that there is also a need for refuelling stations, industrial and commercial heating. He stated that H2GO have a machine learning AI product that boosts value chain, however, the uncertainty of cost points for hydrogen projects means that data needs to drive the certainty for decisions.

He called for business model support to be brought forward as there is a big unknown on how much money is needed for hydrogen storage. He stated that so much education is required in order to attract investors, and this can be done by providing the data to educate accordingly and can contribute to better designed systems. He stated that H2GO have innovation funding that has really

stoked its growth, even from DESNZ, but that it needs further people-driven innovation. He concluded that joining up the supply chain is really key and that it's important that the funding doesn't just stop.

Lord Holbeach took over as Chair from Alexander, who needed to undertake a vote. He introduced **Sarah Kimpton, Vice President, DNV Services.**

Sarah stated that to meet net zero, the UK needs some form of energy storage. She seconded what Jake said, that we are paying between £1-2bn every year to contain wind power. That renewable energy is very precious, so it needs to be captured and stored at scale. The gas networks need storage because they are currently running over 99% - that is incredibly rare. She stated that the need for energy storage, and hydrogen storage is a key part of that. She added that though there is current storage, it needs to scale. In the long duration of energy storage, energy costs will reduce if we have both a gas and renewable solution. She spoke about a project with SGN and Cadent on what happens when it's a cold day with no wind - it found that there is a need for 25-29 TW of gas. That's simply huge.

The energy transition both in the UK and Europe needs to be independent - she stated that we will have trading in the long term but for the time being we need to be self-sufficient. Adding that we currently have 90 days worth of oil storage - and the UK needs the equivalent. She stated that if we put hydrogen in a cabin - we can cover both short- and long-term storage with relative ease. Yet they take 2-10 years to make new ones, so we need to start now. Depleted carbon hydrogen fields are another option, but they require long-term consultation processes. Because geological hydrogen storage takes a long time, we need a business model now. In the Netherlands, transmission companies have built salt caverns to be opened by 2026. The final point we want to make is to make the business models that incentivise hydrogen models and demand accordingly.

Lord Holbeach thanked **Sarah Kimpton** and introduced **Jeremy Brutus, Head of Hydrogen Networks Strategy and Regulations, Department for Energy Security and Net Zero.**

Jeremy stated that when he started in the role, the government hadn't focussed on hydrogen storage and transport. As work was happening on that, there was a realisation that transport storage was going to be important. He stated that we wrote chapters in the hydrogen strategy - but we didn't know lots about what we would need, why we would need it and by when. One of the key conclusions was irrespective of what you need, government will need to do something to get it. Market mechanisms will not work to produce the necessary storage infrastructure. We committed to business models by 2025, but it is what we can deliver. Having committed to those business models, we need to figure out what we need.

We have a 4 pronged strategy, all of which was published in last year's consultation document. We are working on the legislation that was needed to support - mostly through the Energy Bill which will give us the ability to set up hydrogen pipelines supported by a hydrogen mechanism that might be funded through a levy. We are working on the government response to our consultation on design features which you can expect reasonably shortly. We can't deliver a business model ahead of the business model. The net zero hydrogen fund has some mechanisms to support FEDX and HDNX. Ofgem has agreed to allow the funding for some feasibility studies for pipelines. But we are also working on strategic planning.

If you are building a pipeline that works from point A to point B, you need to think of whole system impacts (e.g. how that affects existing infrastructure). The future system operator is probably the right body to regulate. Regulators forum has been created to discuss barriers, resourcing and new opportunities. One of the opportunities we identified is the complete lack of offshore regulation framework. We have published a consultation on it. Legislation is happening, government response to all things + blending will come out soon and the Energy Security Plan in response to the Skidmore review. That will help determine what kind of infrastructure we need and when.

