

Question	Answer
<p>If the 2026 decision on H2 in heating is negative, do you still see a role for the transmission system to carry some blend of H2 to support industrial decarb?</p>	<p>The UK Government has committed to decarbonising power in the UK by 2035 and on average 40% of power generation comes from gas. As more renewable generation comes online there is still a need for flexible generation when the wind doesn't blow and the sun doesn't shine, therefore, the National Transmission System (NTS) will continue to play an integral role by providing hydrogen for power generation.</p>
<p>The focus is on industry growth/opportunities afforded by hydrogen utilisation but what about the additional energy cost for industry and competitiveness?</p>	<p>We are in the process of engaging with all large-scale gas users connected to the NTS which include industrial customers and power stations to understand their needs and how Gas Transmission can support them to reach their decarbonisation goals.</p>
<p>What conversations are you having with large-scale gas users to ensure blending into the NTS doesn't impact their operations</p>	<p>We are in the process of engaging with all large-scale gas users connected to the NTS which include industrial customers and power stations to understand their needs and how Gas Transmission can support them to reach their decarbonisation goals.</p>
<p>How confident are you that H2 will play a significant role in industrial processes?</p>	<p>50% of industrial emissions sit within industrial clusters, a hydrogen backbone will enable decarbonisation of industry in and outside of these clusters. Through our engagement we have heard that hydrogen will be required as an energy vector in the future to decarbonise operations.</p>
<p>Hydrogen for domestic heating appears to be looking less and less likely. Does the need for the NTS disappear if hydrogen for heating doesn't come to fruition?</p>	<p>50% of industrial emissions sit within industrial clusters, a hydrogen backbone will enable decarbonisation of industry in and outside of these clusters. Through our engagement we have heard that hydrogen will be required as an energy vector in the future to decarbonise operations.</p>
<p>Is Project Union being designed to connect existing gas fired power stations which may convert to hydrogen?</p>	<p>50% of industrial emissions sit within industrial clusters, a hydrogen backbone will enable decarbonisation of industry in and outside of these clusters. Through our engagement we have heard that hydrogen will be required as an energy vector in the future to decarbonise operations.</p>
<p>With all the analysis on the cost of Hydrogen, how do you think cost will impact the decisions we make on Hydrogen in homes?</p>	<p>We have seen evidence of the costs of low carbon energy technologies decrease sharply as investment increases. The continuing reduction in the costs of wind power shows a possible trajectory for low carbon technologies. We believe that investing in low carbon hydrogen today, costs will decrease significantly over the next decade, with indications that low carbon hydrogen will become affordable in the 2030s. Any solutions to provide low carbon heating must be affordable and we believe that hydrogen can provide solutions for low carbon heating.</p>
<p>Is Hydrogen heating going to be affordable for consumers in comparison to Natural Gas?</p>	<p>We have seen evidence of the costs of low carbon energy technologies decrease sharply as investment increases. The continuing reduction in the costs of wind power shows a possible trajectory for low carbon technologies. We believe that investing in low carbon hydrogen today, costs will decrease significantly over the next decade, with indications that low carbon hydrogen will become affordable in the 2030s. Any solutions to provide low carbon heating must be affordable and we believe that hydrogen can provide solutions for low carbon heating.</p>
<p>There is a challenge with getting Industry to continually think of the consumer in this journey, do you think this is driving a negative view of H2 for homes?</p>	<p>The biggest driver behind the decision on hydrogen for heat will be demonstrating the safety case of delivering hydrogen safely into homes and understanding any modifications that may be required. This is currently being looked at by numerous projects/trials such as HyDeploy, Hydrogen Homes in Gateshead and future neighbourhood and village trials. This will showcase how hydrogen in homes can operate similarly, efficiently and safely like natural gas today.</p>
<p>Is Rough suitable for hydrogen storage? How will you ensure you get hydrogen rather than a mix with methane/ other gases back?</p>	<p>The Rough reservoir is owned by Centrica, please see the link attached for information on their plans:  <a href="https://www.centrica.com/sustainability/net-zero-together/let-s-make-hydrogen-happen/">https://www.centrica.com/sustainability/net-zero-together/let-s-make-hydrogen-happen/</a></p>
<p>Why are you looking at 2% blending into the NTS when EU is talking about 5% blend. Surely these need to be aligned because of gas interconnectors ?</p>	<p>Our initial plans for testing blends of hydrogen into the gas grid on our FutureGrid site were 2%, 10% and 20%. Our aim was to assess the impact of a variety of blends on our existing network. We originally picked these numbers as we believe they provide a range of potential blends that may occur. In December, the EU proposed that all EU Gas TSOs needed to be able to transport 5% blends for all cross-border points. We have been assessing the impact of including an additional test of 5% to understand the cost and time implications to ensure we can continue to deliver the FutureGrid tests within the required timescales. We hope to be able to finalise this assessment shortly.</p>

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Blend amounts of 2, 5, even 20% (7% by energy) do not contribute enough to Net Zero. Should the focus now be on 100%H2?	We are focusing on a dual pathway which includes 100% hydrogen network and blending in the existing gas network. Current boiler installations can run on 20% hydrogen with no impact which will support the transition to 100% hydrogen. Blending will allow producers to scale up their production of hydrogen, leading to a more efficient transition.
What is the efficiency difference between Electricity > hydrogen storage > electricity vs electricity > electricity storage > electricity??	A mosaic of energy solutions will be required in the future with hydrogen and electricity both playing an important role to provide energy resilience to the UK in a decarbonised economy. Currently there are no electricity storage solutions which are capable of providing the energy resilience the UK requires when we have extended periods of limited renewable generation.
What is the plan for the materials testing phase for compatibility with H2?	Current work is focused on developing an understanding of the impact of hydrogen on NTS materials. This work will inform the creation of a methodology for the approval of materials for high-pressure transmission of hydrogen and hydrogen-natural gas blends. Validation of material will comprise lab-scale coupon testing supported by larger scale component and system tests. Where appropriate, the materials test programme will align with existing codes such as AMSE B31.12 and IGEM/TD/1 Supplement 2. Further information on current projects can be found on the ENA Smarter Networks Portal, or by contacting the Hydrogen Innovation team at: <a href="mailto:Box.GT.Innovation@nationalgrid.com">Box.GT.Innovation@nationalgrid.com</a> .
Why is St Fergus considered significant for hydrogen transmission in Project Union? For 100% hydrogen do we anticipate hydrogen entering the NTS from St Fergus?	There is significant opportunity for hydrogen production at St Fergus, Project Union looks to connect St Fergus to enable hydrogen produced to be transported across GB.
Could timeline be quickened if you can get over the safety issues quickly and Gov/Ofgem can sort out the funding	We are working closely with BEIS, Ofgem and HSE to provide all the required evidence and to understand how a hydrogen transmission network can be delivered safely, efficiently and quickly for our consumers.
Is the industry acceptance of up to 5% blend assuming a stable blend or a flexible one?	We've heard from our directly connected customers and from broader engagement with industry that they need a stable blend.
How widespread is the political support? What will the effect be of the leadership election and any potential general election?	We've engaged with parliamentarians across all parties, including in Scotland, and gained widespread political support. Consequently, we feel confident that there will continue to be a commitment to hydrogen, irrespective of a change in government.
Gas boilers are being banned and gas grids decommissioning across Europe. Why would Hydrogen heating make sense in the UK when this is not the case elsewhere?	Currently 85% of homes in the UK are heated by gas today and the UK housing stock is one of the oldest in Europe. Hydrogen-ready boilers are available and provide minimal disruption to consumers while heating our homes in a similar way to what we do today. Converting homes to alternative heating technologies may be costly and disruptive. Hydrogen could provide an affordable and convenient method of heating homes and deliver net zero.
Can the same level of energy be transported if 100% hydrogen is used?	Due to hydrogen having a lower energy density of roughly 3 times to natural gas, it is anticipated the NTS will have to transport 3 times as much hydrogen through the network to meet current energy demand levels. In the British Energy Security Strategy it is referenced that there could be between 240-500TWh of low carbon hydrogen in 2050 and we are carrying out network modelling to assess the outlook of this on our network.

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Who will pay for a new hydrogen boiler?	Hydrogen boilers will cost the same as existing gas boilers due to a promise made by boiler manufacturers. Government are looking to mandate hydrogen-ready boilers for all new boiler installations in the UK which will naturally replace gas-fired boilers with those compatible with hydrogen.
Most consumers not capable of doing their own business case analysis	Helping consumers make the right decision for them is critical to reaching Net Zero. With a combination of enabling Policy decisions across the whole energy system and by supporting consumer charities such as Citizens Advice and National Energy Action we can help make sure the right information is shared, in the right way and at the right time.