

Future of Gas

Minutes from Steering Group meeting on 15th September 2021

Location

Virtual Event

Attendees

Chris Logue (Chair) – National Grid
Alex Haffner – Electricity System Operator National Grid
Angus Paxton – AFRY
Bill Goode – National Grid
Jon Cranmer – National Grid
Julie Cox – Energy UK
Kirsty Ingham – Centrica
Lorna Millington – Cadent
Marcus Newborough – ITM Power
Ned Abbs-Brown – National Grid
Neil Rowley – National Grid
Professor Joe Howe – Thornton Energy Institute
Ray Arrell – REGEN
Richard Fairholme – Uniper
Sam French – Johnson Matthey
Stella Matthews – Northern Gas Networks
Steven De Ranter – Interconnector
Susannah Ferris – National Grid
Vicky Mustard – Corella

Apologies:

Corin Taylor – DNV GL
David Mitchell – Chemical Industries Association
Hywel Lloyd – 100UK
Lisa Fischer – E3G
Robin Cannings
Rosannah East – National Grid
Sam Hughes – Citizens Advice
Thom Koller – Energy Networks Association
Will Webster – Oil and Gas UK

Guests:

Francesca Bell – OGUK
Harriet Reece – BEIS
Jeremey Brutus – BEIS
Jon Parker – BEIS
Sean Hayward – BEIS
Sion Pryse – BEIS

Welcome and Introduction:

The chair welcomed attendees and confirmed the agenda for the day. The Chair then highlighted two new members to the Steering Group, Vicky Mustard from Corella and Alex Haffner from Electricity System Operator (ESO) National Grid. Vicky explained she works on behalf of Corella in an innovation role, looking in part at how hydrogen will work in the IT systems. Alex Haffner works within Strategy and Regulation and is responsible for pulling together the Future Energy Scenarios and Summer and Winter Outlook publications. The Chair then welcomed guests to the meeting.

Status of Actions:

National Grid went through the status of actions from the last Future of Gas Steering Group. The first action referred to the costing of FES 2021 which was answered in the July Steering Group minutes, so is now closed. The second action referred to the finalised Terms of Reference for the group which were circulated to members in August, closing this action. The final action was around Steering Group members having more visibility of ongoing innovation projects. Summaries of projects will be sent out to members every 6 months, meaning this has been actioned.

Members Update:

Members provided updates to the group on key areas of interest.

Northern Gas Networks have been working with Cadent and National Grid on East Coast Hydrogen. The feasibility study from the project will go to Westminster in November. The hydrogen home is very successful and seeing lots of bookings.

ITM Power shared a variety of updates including; the future production rate targets for ITM power, increased sales of electrolysers year on year, the increasing demand for hydrogen from Asia and the Middle East, and the opening of a new ITM power electrolyser production factory.

National Grid asked a question around concern of demand outstripping supply in the coming years.

ITM Power explained future predictions are always difficult but they are trying to be ahead of the curve by building a new electrolyser production factory. Other electrolyser manufacturers in Europe are doing the same and expanding their production to try take advantage of the opportunity.

REGEN had a number of updates. Firstly, they were commissioned by Cornwall Council and the Isles of Scilly Local Energy Partnership, to assess the opportunity for hydrogen (in maritime, aviation and other sectors) in Cornwall and the Isles of Scilly. The Executive Summary has recently been published and can be found [here](#). Secondly, REGEN produced a general response to the Hydrogen Strategy as well as an '[8 key questions to hydrogen heating](#)' publication. Thirdly, they currently have a secondee in the COP26 team in the Cabinet Office, working to run a digital campaign called '[Faces of the Energy Transition](#)' which celebrates individuals and innovation projects that are pushing the transition forward. Finally, REGEN have been working with ESO National Grid on balancing services, including gas generation assets.

Oil and Gas UK have been looking at the Low Carbon Hydrogen Standard and have been working with colleagues in the International Association of Oil and Gas Producers (IOGP) on taxonomy which has put a limit on hydrogen. They are considering responses to other consultations including the Co-Governance consultation and Future System Operator consultation.

AFRY are working with the Finnish Government helping them to develop a hydrogen strategy. Other new projects include the economics of green hydrogen production, the economic feasibility of metal hydrides and the opportunity for German TSOs to switch to hydrogen. AFRY has also been talking to the US about their migration to hydrogen now that decarbonisation is higher on the US agenda compared to recent years.

Future Energy Scenarios 2021 - FOG Debate 1

Electricity System Operator National Grid presented a summary of the Future Energy Scenarios 2021. The first key message was around the gaps in policy which need to be filled to meet net zero, including how net zero can be delivered, who needs to do what and the no-regret actions to take. The second key message was around the importance of consumer behaviour in decarbonisation. This includes how consumers react to policy and how we educate younger generations who will be future consumers. The third message covered the need for market reform, including what the priorities might be for future market design and the importance of adopting a whole system perspective. The fourth key message was around investment in whole energy infrastructure. Hydrogen storage will be particularly important for its time shifting ability over long periods of time. These messages should not be treated in isolation as there are links between them. ESO National Grid closed by discussing key interim milestones on the way to 2050.

National Grid had a question whether there is a clear series of no-regret actions we could take that have come out of FES.

ESO National Grid answered yes to an extent and gave energy efficiency as an example of a low regret action to take. Updated modelling for this year shows how energy efficiency improves the economics of hydrogen heating as well as heat pumps. Therefore, energy efficiency is one low regret action that could be taken irrespective of what path you go down in domestic heating.

ITM Power asked a question around how we will mobilise people (consumers, those installing solutions) to change and how such practicalities are factored into the scenarios.

ESO National Grid explained they try to apply levels of societal change to each scenario, to understand impacts on consumers.

Corella asked whether there are any regrettable actions to consider.

ESO National Grid acknowledged that people could start making some partial or low regret decisions if not much else is happening. Whilst they might lead to sub-optimal outcomes, that still might be better than doing nothing.

Energy UK asked a question around time of use tariffs and whether they would have to be mandated at some point.

ESO National Grid recognised this as an important point but explained that vulnerable customers would have to be considered, particularly if there is a high price period and if customers have inflexible demand.

National Grid asked a question around how we'll retain whole system operability as supply and demand changes and new technologies develop.

ESO National Grid explained that they already look at supply and demand together rather than in isolation, which should allow for whole system thinking going forward.

Energy UK raised a comment about the importance of security of supply and how it can be delivered at all points during the transition. It was felt this message needs to be reinforced to ensure its widely understood across the industry. In terms of operability across electricity and gas, Energy UK were keen to understand whether it's the day to day decisions that need to come together, or the planning.

ESO National Grid felt it was a question of strategic planning vs market forces. The ESO as residual balancer gets a lot of engagement in the market and its key that decisions don't get dispatched elsewhere. It's important to have a market that is giving the right signals, in terms of investment and operation.

REGEN observed that hydrogen fuelled generation is low in all scenarios and asked a question around gas to power uptake in the future. One consideration for future market design is a turbo capacity market.

ESO National Grid explained that they tend to focus on hydrogen for peaking power because hydrogen might be able to economically run at lower levels, but recognised there is a need for a capacity incentive.

ITM Power felt we could design better systems if we understood more about the negative reserve and how that changes with time.

ESO National Grid pointed towards batteries and battery storage, changes in behaviour and exporting via interconnectors but recognised there could still be excess generation where you could shift demand.

Centrica asked to hear more about hydrogen storage in terms of what it might look like, scale, and where it might be located.

ESO National Grid caveated that the answer would vary by scenario. For example, system transformation proposes that hydrogen storage will be on a large scale, most likely in salt caverns taking a centralised approach. Consumer transformation proposes hydrogen storage could balance the system and is likely to be more decentralised.

Hydrogen Strategy – FOG Debate 2

Low carbon hydrogen will play a key role in meeting net zero by 2050, particularly in 'hard to electrify' industrial sectors but also in providing flexible energy across power, heat and transport. The hydrogen sector could be worth £900m, unlock £4bn in private investment and support over 9000 UK jobs by 2030. The strategy suggests a twin track approach to production (both green and blue hydrogen) to allow the UK to achieve scale in production relatively quickly. BEIS then went through a roadmap for the 2020s, detailing what the hydrogen economy is expected to look like throughout the early, mid and late 2020s. There are a variety of funding pots available to the gas industry, as well as supporting documents which give more detail on funding, reports and consultations.

Energy UK asked to hear more about the Hydrogen Regulators Forum.

BEIS explained its something they are looking to set up and the key focus will be on non-economic regulation. The aim is to be able to assess what the regulatory barriers might be in initial hydrogen projects, for example safety permitting and planning.

Corella asked a question on timings for the policy decision on blending.

BEIS are working on the cost benefit analysis to help reach the right policy decisions for blending hydrogen into the network. There are lots of other policy decisions to make that will impact blending decisions, for example whether green tariffs should be introduced.

National Grid asked a question about what would need to happen for more than 2 clusters to happen by 2025.

BEIS said they would have to take the question away.

Johnson Matthey asked a question around forecasts for electricity prices and carbon intensity, noting that these will be key to driving the correct behaviour in current projects/investments.

BEIS explained that reference prices used within business models are also important and pointed to the Low Carbon Standard consultation which will consider similar points.

AFRY joined the discussion by saying that future prices are difficult and explained that a lot of current investments are grounded on today's understanding of prices. The notable changes into the future are the falls in costs that might be expected, for example, costs of electrolysers, hydrogen gas turbines, offshore wind and the increase in carbon prices.

ESO National Grid added that electricity prices in the future may not be set based on a marginal price set by gas generation.

Centrica asked if there is an interaction between the hydrogen work and the future of the gas system call for evidence.

BEIS explained there is an interaction as the call for evidence considers what the end gas system might be, which is likely to include hydrogen.

AOB:

The Chair shared that Martin Cook, Commercial Director at National Grid Gas, will be Chair of the Steering Group going forward and Chris Logue will resume to becoming a member of the Group. The Chair closed by thanking those that presented and attended the meeting.

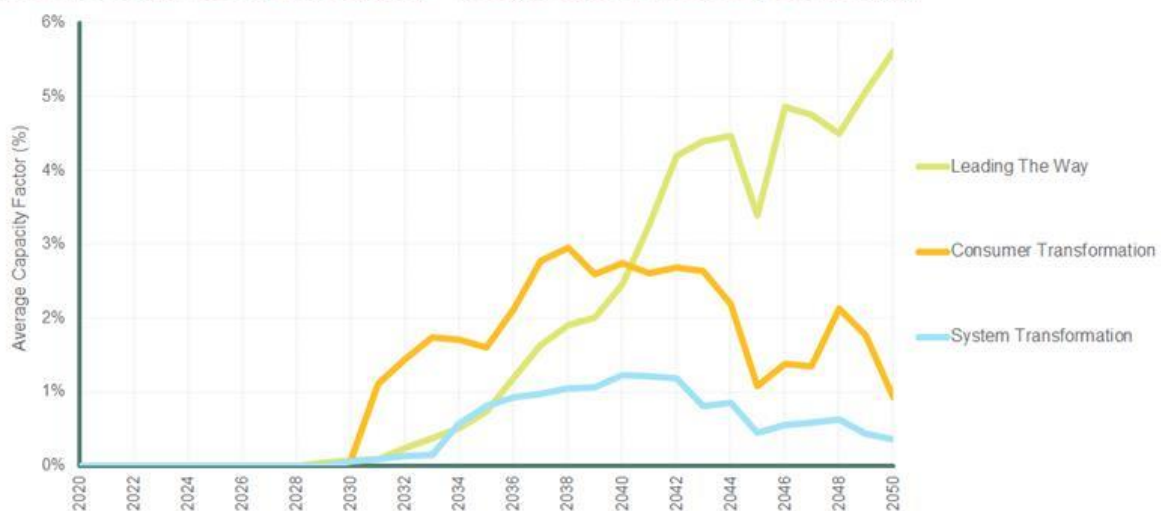
Next Meeting:

Wednesday 17th November 2021

Documents from the meeting:

In relation to the FES 2021 debate:

All GB Hydrogen Peaking Elec Capacity - Average Capacity Factor By Scenario (%)



Actions to complete:

Action	Who is to complete it?	Deadline for completion
Consider hydrogen storage for a future FOG debate or for a sub-group to FOG SG.	National Grid to consider hydrogen storage for a debate topic. Include in pipeline of debates	Action complete - Likely be a debate for 2022 onwards.
Steering Group members to follow up with debate facilitators for bi-lateral discussions	Steering Group members with alex.haffner@nationalgrideso.com and Jeremy.Brutus@beis.gov.uk	N/A