

Future of Gas Seminar – 29th November 2016

Questions and Answers

1. Do emission figures for gas versus other fuels include upstream and downstream leakage?
No they do not – the figures only include the emissions from the combustion of fossil fuels and do not consider leakage.
2. Does public opinion play any part in influencing National Grid's modelling and ultimate policy recommendations?
Yes – considerable stakeholder feedback has been, and will continue to be, used to develop our scenarios. We are engaging with as many industry experts as we can to aid our views.
3. Are you going to send out the slides?
Yes – these are available via the following link <http://futureofgas.uk/events/future-of-gas-seminar-2016/>
4. Interesting to see CCS remains in your scenarios. Do you believe that CCS is a viable part of the mix?
We see it as essential to achieving carbon targets at lowest cost, echoing stakeholder's views, and ETI and CCC analysis. Like many of the technologies required to reduce our emissions from today's levels, some form of government intervention, financial incentive, and/or general market momentum is required. At present the direction for this is uncertain.
5. What assumptions have you made on the hydrogen sources in your scenarios?
In our scenarios hydrogen is primarily created from natural gas using the steam reforming process. There is also some lesser amounts of hydrogen created from bioenergy with CCS and electrolysis.
6. Where does pre combustion CCS fit with your scenarios?
Pre-combustion CCS is used within the Hydrogen scenario to convert natural gas to hydrogen using Steam Methane Reformers. Other than this process all CCS referred to within the scenarios refers to post-combustion CCS.
7. It looks like you capping efficiency gains - why is this the case?
For the purposes of the game we chose a profile of energy efficiency based on our FES 2016 levels. We recognise that there are views supporting higher and lower volumes than these.
8. Given government subsidies for biomass are being reduced due to questionable benefits is it realistic to consider it as a viable future source of power?
There are issues around sustainable biomass certification for certain imports, however these issues can be resolved. Also the levels of sustainable biomass imported are relatively low and have been agreed as realistic by organisations with expert knowledge in this area.

9. How do you justify the position that each of the FES scenarios is equally plausible?

Each year we assess history and the current starting position within the energy industry. In order to create the scenarios we then take views of what the possible future direction could be from there. In each case we take a view on how long it would take to change current direction/trajectory in order to align to that scenario. Our Future of Gas sensitivities are based on the FES scenarios but are then flexed to test the extremes of gas demand whilst additionally meeting the 2050 carbon targets.

10. There isn't much discussion of costs, has this analysis been done?

We haven't explicitly focused on cost analysis. We use a whole system optimisation model which contains costs for current technologies and estimates of future technologies. However the focus of the FOG sensitivities is to illustrate the possible role of gas through a number of different 2050 pathways.

11. Have the considerable behavioural challenges of converting 90% of homes to gas driven heat pumps been factored in?

There is little behavioural change required for gas heat pumps, but electric heat pumps require a fair amount, and most importantly a higher cost heating system with potential disruption. This is one of the greatest challenges, and the main reason why heat is the hardest to decarbonise. It also highlights the viability of the Hydrogen scenario, as this requires least customer behaviour change.

12. Are NG able to do more to reinforce the message publicly that decarbonising heat solely via electricity is just nowhere close to a credible option?

Our view is all technologies are important and a mix of technologies is the most viable outcome to decarbonising UK energy at least cost. This is a message we are increasingly seeing from others due to the scale of the challenge to decarbonise heat. The FOG project will highlight different ways in which gas can be used in the energy system and this includes heating.