

EUA response to the Energy revolution inquiry

This submission is from the Energy and Utilities Alliance (EUA) a not for profit trade association that provides a leading industry voice to help shape the future policy direction within the energy and utilities sector. Our association comprises 5 associations: Utility Networks, Heating and Hotwater Industry Council, Hot Water Association, Manufacturers of Radiators and Convector and the Industrial & Commercial Energy Association.

EUA believes that ‘Green Gas’ is the innovative energy solution that will have the potential to transform the energy debate in this country and the one technology that can allow us to actually meet our 2050 decarbonisation targets.

Currently the most recognisable form of Green Gas is biomethane. This is the gas captured from waste processing, typically anaerobic digestion. The technology is proven, it has worked for years. Anaerobic digesters are increasingly commonplace in rural areas as the farming industry uses the non-domestic Renewable Heat Incentive to support generation of biomethane. The gas generated is then used locally, often to generate electricity which can be fed into the grid. Companies like Severn Trent have taken a further step, and clean up the biomethane to inject the “green” methane into the gas grid at their sewerage works in Minworth, on the outskirts of Birmingham. By the end of 2015, some 2TWh/annum was injected into the gas network, equating to around 155,000 homes.

Rural homes have often been seen as the obvious target for alternative energy sources. But industry has responded by developing biopropane as an alternative to LPG used in around 170,000 UK homes and businesses that are off the gas grid. The biopropane is made from a waste product, hence its “green” qualification and it requires no change to either the boiler or heating system as the gas is identical in its composition. Calor plan to start marketing biopropane in 2017 to their LPG customers. EUA have calculated that carbon emissions could be cut by 83 per cent if consumers switch from LPG to biopropane.

A development on from biomethane, is Synthetic (or Substitute) Natural Gas (SNG). This is a methane-based gas, created artificially rather than being extracted from the ground. It achieves “green” status because it uses waste materials, usually sent to landfill or incineration, to create the gas. The process is technically complex, it involves Advanced Plasma technology in effect heating the waste to very high temperatures, generating gas that is then captured for use. Ofgem have recently awarded National Grid funding to develop

a commercial scale plant in Swindon, having seen the success of smaller trials of the technology. The alternative use of waste gives the gas its “green” credentials. The Swindon plant envisages supplying gas for HGVs but there is nothing to stop it being fed into the gas grid for everyday use once it is blended to reach the gas quality standards required.

Studies by National Grid suggest up to a third of current UK domestic demand for gas can be met from bioSNG, around 100TWh/annum. If progress towards greater energy efficiency in our homes and workplaces continues, they suggest by 2050 a 30 per cent reduction in gas demand could be achieved. This leaves around a third of current UK demand to be met from natural gas, but by 2050, this means half the UK’s domestic gas supply could be green gas.

A typical bioSNG plant is around half the size of an incinerator, for the same volume of waste it uses. Its emissions are cleaner; it will last 25 years and create around 100 jobs in the construction phase and permanently employ around fifty skilled engineers to run it. It provides for more jobs than landfilling does and the UK would be using its waste and not in some cases exporting it.

Work undertaken by the Future Energy Scenario team at National Grid, suggests that any outstanding requirement for natural gas to meet domestic demand would meet our 2050 climate change obligation of an 80 per cent reduction in greenhouse gases.

The other Green Gas that is increasingly talked about is Hydrogen. It is currently produced from natural gas using Steam Methane Reforming, where the carbon can then be captured. The benefit of using hydrogen is that when the gas is combusted it does not give off carbon dioxide. It is the ultimate green gas. What’s more, it can be produced using the process of electrolysis, from excess wind power at a time the electricity grid does not require its use. Hydrogen can be transported through existing PPE pipes, currently used in our gas network, and only minor modifications required to appliances.

At the moment within existing gas quality guidelines, we can mix up to 2 per cent of hydrogen into the blend that flows through the gas grid. Some studies suggest that up to 20 per cent might be feasible – this makes the overall mix of gas “greener”. However, Northern Gas Networks are conducting a feasibility study into 100 per cent hydrogen through the gas grid. Their Leeds 21 study is arousing considerable interest within the industry on the basis that it envisages using the existing gas grid, conventional heating systems such as central heating in the home but in a completely carbon free way. The way in which the gas grid grew up from localised supply to a national infrastructure enables the potential switch to be made in an organised manner. Similar to the 1960s switch from towns to natural gas. Already

appliance manufacturers are discussing the implications for their products. It could well be that swapping a central heating boiler's burner, in each home, is an affordable option compared to other means of tackling the trilemma.

All Green Gases offer a cost effective and effective way to meet our 2050 carbon reduction targets. Biomethane and BioSNG would not require wholesale replacements of heating appliances unlike the electrification of heat pathway. Hydrogen conversion would require more planning and long term thinking, but could still be delivered cheaper than the all electric pathway and would not require consumers and businesses to radically change their behaviours and appliances.

This may sounds intuitive, but it actually represents a radical rethink of how we meet our 2050 goals, counter to the current all electric orthodoxy.

EUA would welcome the opportunity to present our evidence to the committee.

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