

## Consultation Response

8<sup>th</sup> January 2016

### **EUA response to the National Infrastructure Commission call for evidence**

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 divisions: Utility Networks, the Heating and Hotwater Industry Council, the Hot Water Association, the Manufacturers Association of Radiators and Convector and the Industrial & Commercial Energy Association (ICOM).

We welcome the formation of the National Infrastructure commission and the call for evidence on the three target areas. We are particularly pleased that energy is being recognised as an important UK infrastructure project.

We would urge the commission to ensure that when compiling the final recommendations attention is paid to the gas grid and how gas consumption in the UK is a cost effective and sustainable option for the future. Heat currently accounts for approximately 50% of total UK primary energy demand and 40% of UK Green House Gas emissions (estimates based on figures from DECC's Energy Consumption in the UK statistics).

To deliver heat at peak times of demand, on an [or at least majority-electric basis] all-electric basis, has a significant impact upon power generation, transmission and distribution.

Typically, heat is demanded at times of the day when marginal grid carbon intensity is at its highest (in terms of carbon emissions). Without significant expenditure on zero-carbon

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electricity generation or exceptionally efficient electric heating systems, the electrification of heat is at odds with the UK’s climate and carbon abatement commitments. Furthermore, the power transmission and distribution network would need to be significantly upgraded in order to cope with higher peak demand. To avoid this infrastructure expenditure, which would lie idle for much of the year, the existing gas grid should be acknowledged as playing a major role in supplying energy to the UK into the foreseeable future. As such, it should be recognised as a key part of the UK’s national infrastructure.

The graph below (sourced from Grant et al; 2013) shows the nature of the challenge, with massive variation throughout the year in gas demand (heat) compared to the fluctuations in electricity demand (power). Even with a massive energy efficiency retrofit programme (which we would support) our climate is a major determinant of such variation.

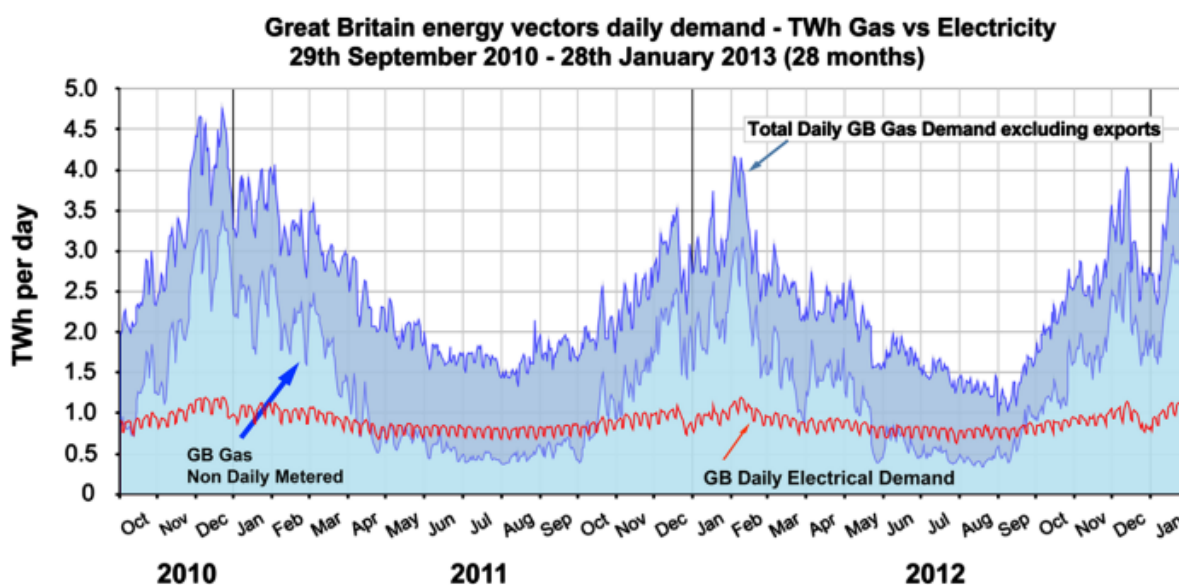


Fig. 1. Daily GB Gas and Electricity Demands (TWh). Data sourced from National Grid website (NGDIE, 2013; MHED, 2013).

Analysis of the Future Energy Scenarios conducted by National Grid, suggests that gas can still be used when meeting our 2050 climate change obligations. More recently, low carbon

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gas – biomethane, synthetic natural gas and hydrogen – all have an important role in keeping the gas grid distributing fuel to our homes, when it is needed. Potentially, gas powered HGVs - supplied via the grid - could also bring about reductions in carbon emissions using known and proven technologies and at little or no extra cost to the transport sector.

Notwithstanding this, demand for electricity will increase in the future and its generation and distribution needs to be planned for. Population change and switching to products such as electric cars are just two causes of this demand increase.

To help provide the flexibility on power generation, to meet demand patterns and supply variation, we believe gas has an important role to play. To this end, gas storage therefore is a key component of the UK's energy infrastructure now and is set to play an increasing role in the future. For the past 40 years, the UK has benefitted from a huge gas storage facility, the UK Continental Shelf, with its ability to increase gas flows where necessary. Our increasing dependence on gas imports going forward brings sharply into focus both the strategic benefit in terms of security of supply but also the price smoothing function played by gas storage. Part of the review should examine whether the UK has sufficient gas storage levels, as our evidence suggests it does not compared to our European counterparts. Gas storage needs to have both the ability to deliver short-term balancing to the system but also longer-term benefits in security of supply. Whilst UK shale reserves offer potential for homegrown supply, the amount of recoverable gas and the associated flow rates are as yet unknown.

If the Commission would like us to expand on any of these points we would be very pleased to do so.

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