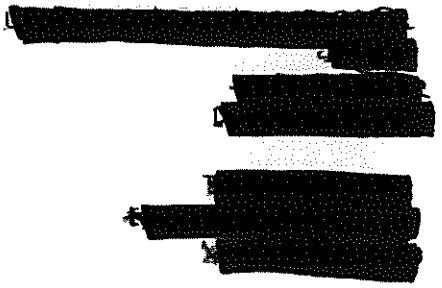
UKOOG United Kingdom Onshore Oil and Gas



10 August 2017

Mr Jonathan Brearley
Senior Partner, Networks
Ofgem
9 Millbank
London SW1P 3GE

Ofgem open letter on the RIIO-2 Framework: United Kingdom Onshore Oil and Gas response

Dear Mr Brearley,

Thank you for the opportunity to respond to the Ofgem open letter on the RIIO-2 Framework. I am responding on behalf of United Kingdom Onshore Oil and Gas (UKOOG), the representative body for the UK onshore oil and gas industry for both developers and supply chain companies.

It is important to note that UKOOG represents the upstream part of the industry, which has the potential to deliver a significant new source of onshore gas in the UK – just 10% of the shale gas in the North of England could meet the UK's entire gas needs for 40 years,[1] and according to National Grid, shale gas could supply over a third of the UK's gas demand by 2030.[2] Decisions on the gas transmission and distribution networks are therefore of great importance to our members, and to the future of gas supply in the UK more generally.

In addition to this response to the open letter, we would also like to engage more substantially through bilaterals and on relevant working groups, as set out in the stakeholder engagement section of the letter, and via responses to the forthcoming consultations.

Our overall aims are to ensure that the gas that our industry produces is not transported by tanker, and that the creation of gas gathering, processing and transportation infrastructure is optimal for the grid system. Underlying these aims is the need to ensure the minimal amount of disruption to local communities.

The key points we would like to make are as follows:

1. Gas is the most important heating source in the UK, and will remain so for a considerable time to come. Gas is used to heat 84% of homes,[3] and for cooking in 61% of domestic kitchens.[4] Overall, 45% of final energy consumed in the UK is for heat – of which around three-quarters is used by domestic, commercial and public buildings, and remainder for industrial processes – and 68% of the heat is met by gas.[5]

2. Over the last 40 years, the gas transmission and distribution system has primarily handled gas that has arrived in the UK from offshore – from the North Sea and the East Irish Sea, and more recently in increasing amounts from continental Europe and LNG.

3. Over the coming years, this could effectively be turned "inside out", with local production of a more diverse range of gases – including natural gas from shale, biomethane and hydrogen – from different

parts of the UK. This return to local production would effectively bring the gas network closer to the previous "town gas" system, and ensure the continuing decarbonisation of the network.

4. The key requirement for this future gas network will be flexibility to adapt to

   a) a range of new gas entry points, some with very significant volumes – a shale gas production site could produce in excess of 10 bcf a year, for example;
   b) differing gas composition, including quality, CV and Wobbe number;
   c) different types of decarbonised gas in the system, including pure or blended hydrogen, bio-SNG and greater volumes of biomethane.

   In addition, smart gas services for consumers and natural gas as a transportation fuel will become increasingly common.

5. Many decisions and developments that will potentially have a major impact on the gas network will not be made before the RIIO-2 Framework is determined. For example, the locations of shale gas production sites – and associated gas transportation infrastructure needed to move the gas to market – are likely to become clearer in the early 2020s. Similarly, a government decision on whether to use pure hydrogen in the gas network will be made in the early 2020s. The Cadent Hy-Deploy project, which will determine whether hydrogen blends of up to 20% will be possible, is not due to be completed before 2019.

6. Therefore, the RIIO-2 Framework needs to allow for differing levels of work on the network to be both *determined* and *undertaken* during the RIIO-2 price control period. Waiting until the end of an eight-year RIIO-2, i.e. until 2029, would be too long and would risk jeopardising both the production of natural gas from shale and the decarbonisation of the network.

7. We are encouraged that the Ofgem open letter states that "the RIIO-2 price controls ... will need to be adaptable to a wide range of future scenarios". We agree strongly with this view and would urge that this adaptability be secured in the RIIO-2 Framework.

8. We also believe that network innovation funding is important and should continue. Project CLoCC will reduce the time it takes to get an NTS connection to less than a year, which will be of great benefit to onshore gas operators and consumers. Other network innovation projects are examining the feasibility of creating a more flexible network, including localised CV billing, higher hydrogen blends and 100% hydrogen in the distribution network. This work is necessary for the decarbonisation of the gas system and should continue past the current RIIO period.

As appendices to this letter, I am attaching:

- A map showing the onshore oil and gas licences together with the NTS lines. The map shows that a direct connection to the NTS will be the best option in some parts of the country, but for others, a connection to the local distribution grid would be more appropriate. In the latter case, considerations such as the seasonal profile of demand will be important.
- A chart showing the potential production profile of a 10-lateral and a 40-lateral shale gas production site. The chart shows that the volumes of gas from a production site could be very large, and will also vary.

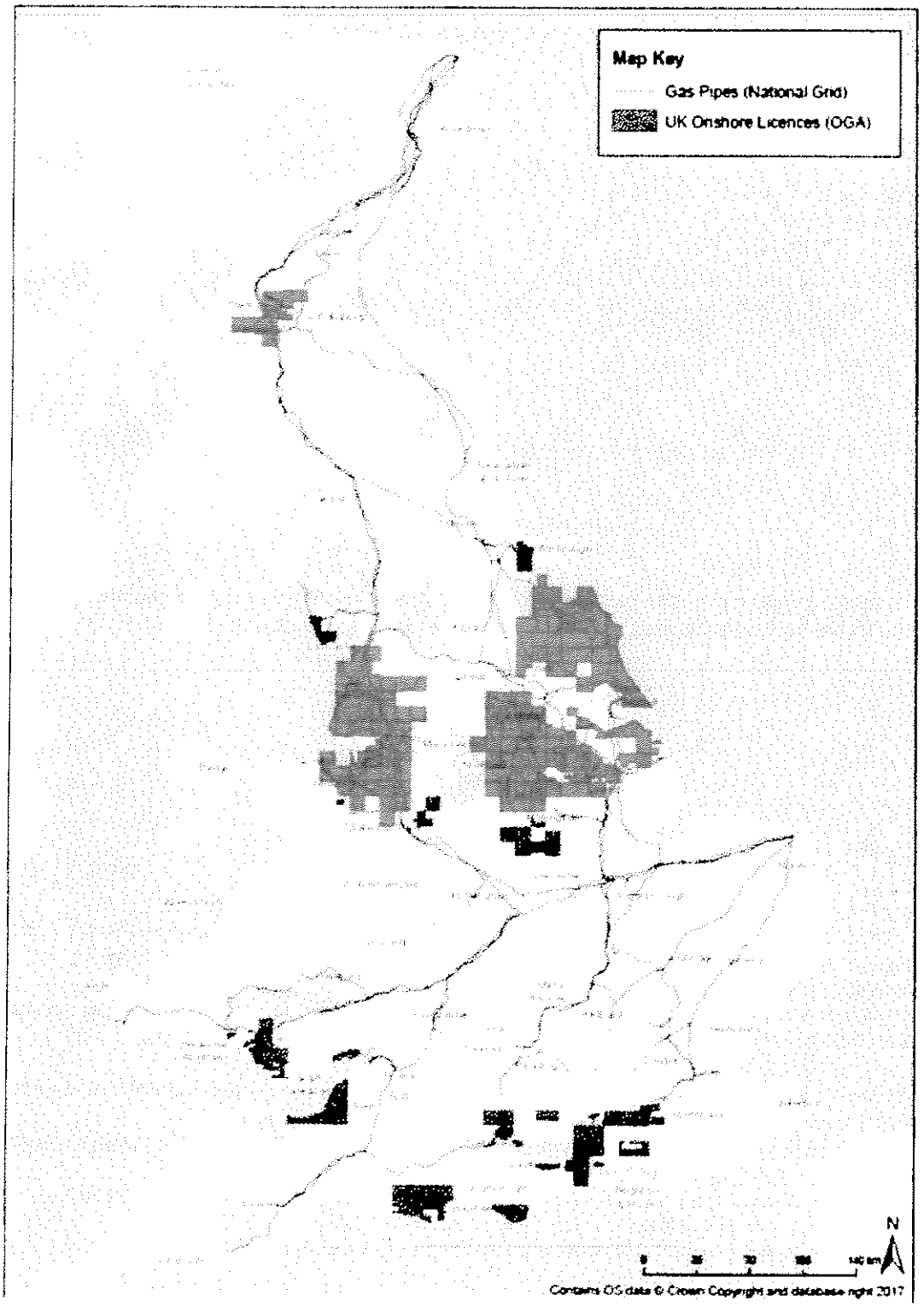
We look forward to continuing to engage with you throughout the RIIO-2 process.

Yours sincerely
Ken Cronin

Chief Executive, **United Kingdom Onshore Oil and Gas**

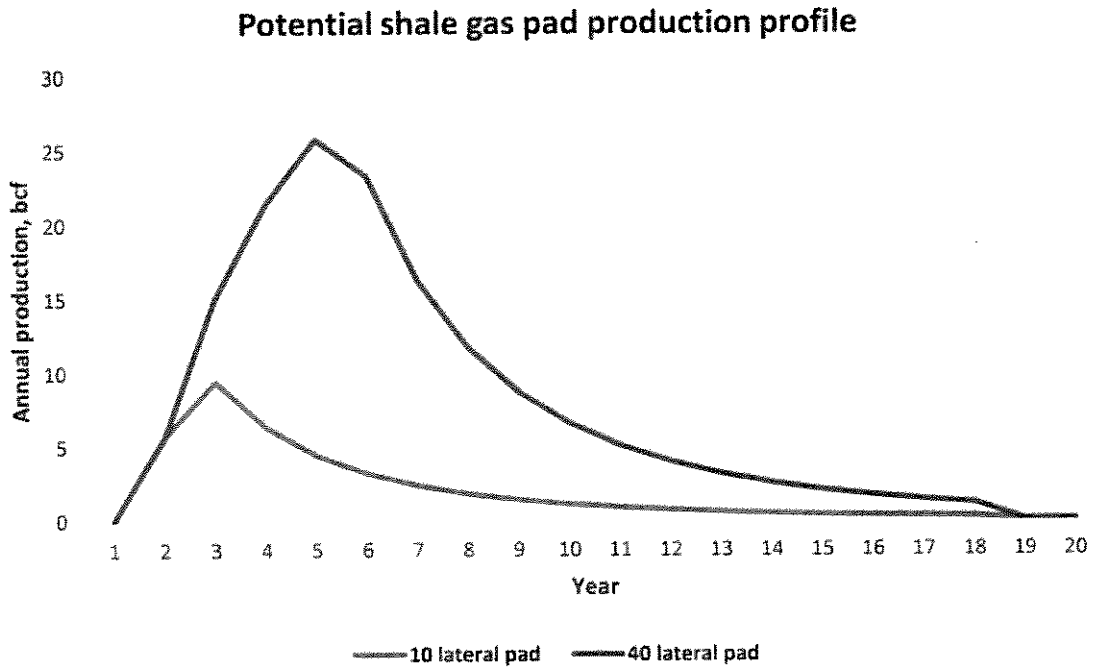
Appendix 1: UK onshore oil and gas licences and the NTS

This map shows the onshore oil and gas licences together with the NTS lines. It shows that a direct connection to the NTS will be the best option in some parts of the country, but for others, a connection to the local distribution grid would be more appropriate. In the latter case, considerations such as the seasonal profile of demand will be important.



Appendix 2: Potential production profile from a single shale gas production site

This chart shows the potential production profile of a 10-lateral and a 40-lateral shale gas production site. The chart shows that the volumes of gas from a production site could be very large, and will also vary.



The above chart assumes production per lateral of 4 bcf. It is worth noting that wells in the Marcellus shale in the US are now typically producing 8 bcf, so this may be an underestimate.[6]

[1] British Geological Survey, The Carboniferous Bowland Shale gas study: geology and resource estimation, 2013 https://www.ogauthority.co.uk/exploration-production/onshore/reports-bowland-shale-gas-study/

[2] National Grid, Future Energy Scenarios 2017, 'Consumer Power' scenario http://fes.nationalgrid.com/

[3] Department of Energy and Climate Change, United Kingdom housing energy fact file 2013, Tables 6a, 6b and 6d – data for 2011 (most recent year available) https://www.gov.uk/government/publications/united-kingdom-housing-energy-fact-file-2013

[4] Energy Follow-Up Survey 2011, Report 9: Domestic appliances, cooking and cooling equipment, Prepared by BRE on behalf of the Department of Energy and Climate Change, December 2013 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/274778/9_Domestic_appliances__cooking_and_cooling_equipment.pdf

[5] Department for Business, Energy and Industrial Strategy, Energy Consumption in the UK 2017, Table 1.04 https://www.gov.uk/government/statistics/energy-consumption-in-the-uk

[6] Muhammad Omer Bashir, Decline Curve Analysis on the Woodford Shale and Other Major Shale Plays, Society of Petroleum Engineers SPE-180478-MS, May 2016, Table 10