

Gas Network Innovation Competition Full Submission
Supplementary Answer Form

Project: Commercial BioSNG Demonstration Plant

Tick if this answer has been provided verbally: ☐

Project code	NGGDGN02/1	Question Number	16
Question date	28/8/15	Answer date	3/9/15
Submission section question relates to	Section 4a		
Topic			
Question	<p>The environmental benefits case appears to be based on BioSNG vs. fossil fuels. To produce substantive amounts of BioSNG will require a significant amount of RDF. Has the project considered:</p> <p>(i) the opportunity cost of using RDF for BioSNG as opposed to other uses?</p> <p>(ii) how much of the potentially available RDF would be needed to produce the amount of BioSNG needed to deliver the benefits quoted between 2020-2050?</p>		
Notes on question			

Answer	<p>The Project is intending to use wet RDF produced at Swindon Council's facility. The BioSNG technology can use a wide range of waste derived feedstocks including solid refuse fuel, waste wood, straw and corn stover. In addition, there are a number of synergies in combining a material recycling and BioSNG facility that would be able to accept municipal or commercial waste directly. The flexibility of the technology is one of its key strengths.</p> <p>Other Uses</p> <p>The project has considered alternative uses of RDF. The main alternative is production of electricity through incineration or gasification either in the UK or, after export, in Western Europe.</p> <p>The value of RDF is reflected in the gate fees determined by the market. These are reviewed and reported by the WRAP¹ and Lets Recycle². The current range quoted in Lets Recycle is £70-95/tonne compared to the £65/tonne assumed in the financial models for first of a kind plants.</p> <p>The capital and operating costs of alternative technologies for processing RDF are well understood and publicly available through sources such as the DECC review³. The Project Partners have modelled current and forecast costs for waste treatment facilities and these support gate fees continuing at current levels unless a significant new technology emerges.</p> <p>Finally, there are a large number of pathways that produce low carbon electricity such as wind, solar, nuclear and tidal and these all compete with electricity from RDF. Currently, there are very few pathways for producing renewable gas and RDF represents a very valuable resource for gas production. It should therefore be stewarded towards gas production rather than forfeited on the production of electricity. NG forecasts⁴ that the carbon intensity of electricity will fall below the carbon intensity of natural gas in the next three years. At this point the use of RDF to produce gas will provide greater green house gas emission benefits than production of electricity.</p> <p>Volumes Required</p> <p>The Department for Transport commissioned a comprehensive study on available feedstocks⁵ for production of biofuels, such as BioSNG. This sets out a total capacity for production of biofuels from household and commercial waste of 155PJ per annum in 2020. After adjusting for the fossil portion of waste and converting to TWh, this equates to 64TWh. Currently a relatively small proportion of this waste is converted to electricity in conventional EfW plants, with the substantial majority either being landfilled or exported. The project partners' forecast of BioSNG production in 2030 is 37TWh, 58% of the waste available in 2020. BioSNG will be competing with electricity production for this waste but, for the economic and climate</p>
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¹ <http://www.wrap.org.uk/content/wrap-gate-fees-report-detailed-2014>

² <http://www.letsrecycle.com/prices/efw-landfill-rdf-2/>

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/66176/Renewables_Obligation_consultation_-_review_of_generation_costs_and_deployment_potential.pdf

⁴ <http://www2.nationalgrid.com/uk/industry-information/future-of-energy/future-energy-scenarios/>

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/277436/feedstock-sustainability.pdf

	<p>change reasons set out above, it is likely to be able to capture a significant share.</p> <p>In addition to household and commercial waste, other feedstocks such as straw and similar residues are also identified by DfT's advisors. Utilisation of such material alongside RDF on a 2050 timeframe would enable 100TWh/a, on the basis that the benefit of BioSNG compared to electricity generation directs feedstock preferentially to gas production by this point in time. It is also noted that mature conventional biomass supply chains being developed through biomass power station conversions could further augment feedstock supply.</p>
Attachments	