

## Commercial BioSNG Demonstration Plant (NGGD) – 2015 NIC ISP Questions

- 1. Under criterion (a), please provide some quantification for how the project would deliver benefits that outweigh the costs. There are multiple means by which the project benefits the gas consumer:**

**Direct consumer benefits.** Biomethane and BioSNG allow customers to reduce their carbon emissions without the need for any investment at the point of use. For example, the avoided costs for a typical customer in a 3 bedroom semi-detached house are a minimum of £4,000 in appliance costs compared with, for example an equivalent air-source heat pump. If 100TWh of BioSNG were available this could supply 6.25m properties, which would not have to make this change, giving a direct benefit to gas consumers of £25bn.

**Energy system benefits,** which cascade back to the consumer. BioSNG has an important role in a cost-optimal pathway to meet the UK's climate change targets in a secure manner, as shown by work by Redpoint on decarbonising heat. The aggregated annual saving across the whole energy system with the BioSNG technology providing 100TWh of gas was estimated using a RESOM model to be around £1.4bn per annum in 2030; this saving grows to £8.3bn per annum by 2050. This avoids the costs for incremental reinforcement of electricity networks, heat networks or additional low carbon generation. In addition, it would avoid or reduce the potential need to decommission part or the entire gas distribution network, a substantial cost largely ignored in most economic analysis (high level analysis of the cost of decommissioning the gas distribution networks would be in the order of £8bn).

**Project funding benefits.** These £billion benefits are achieved by gearing the £6m contribution to the project from the gas consumer by more than a factor 3 to execute the £21m demonstration project, further enhancing the cost effectiveness of delivery.

- 2. Under criterion (b), please justify why the scale/cost of the Project is appropriate in relation to the learning expected to be captured.**

The project must be large enough to convince funders and other stakeholders that commercial and technical risks of operating a full scale BioSNG plant are acceptable. This requires the project plant to run on a full time basis in a commercial environment and to replicate a full scale facility as closely as possible. Evidence from the development of similar technologies such as the generation of electricity or production of methanol using waste gasification is that funders will accept a maximum scale-up factor of ten from demonstrator to commercial plant. The smallest size of a commercial plant is around 220GWh/annum resulting in the target 22GWh/annum for the Project.

- 3. We understand that the project will continue to work with the same partners that have been working on the BioSNG Demonstration Plant project. Please can you elaborate on why you believe this option provides the best value for money for customers compared to competitively tendering for the work?**

Due to the specialised nature and relative immaturity of the technology there are very few organisations that are capable of undertaking such a project at present. Previous investigations identified only one source of high-quality waste-derived syngas suitable for methanation in the UK, through the use of Advanced Plasma Power's Gasplasma technology, and the situation has not changed in the intervening period. In addition, more than 75% of the cost of the project relates to capital equipment. This is purchased from third parties and will be competitively tendered using best practice procurement approaches to deliver best value. The balance of the work (mainly design delivery and dissemination) is being undertaken by the collaboration partners, in particular APP. The partners are not only providing direct contributions in kind to the project, but given the years of experience they

have in this area of development, they are able to deliver rapidly and cost-effectively. Finally, the location of the plant on an existing gasification site with associated facilities and expertise is expected to be beneficial.

**4. Please explain how the Project will be funded if the submission to the Advanced Biofuels competition (Department for Transport) does not deliver the majority of the funding.**

The outcome of the DfT funding competition will be notified on 17th July, which is significantly earlier than the NIC decision-making process. This means that Ofgem will be in a clear position by the time it reviews a final NIC application to know if the DfT funding stream is available. Furthermore, the Project Funders are seeking alternative funding in the event that the expected Department of Transport award was not to be provided. The European Union is providing funds for advanced biofuels under the Horizon 2020 programme and discussions have begun with other industrial partners.