

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	22
Question date	8/9/15	Answer date	11/9/15
Submission section question relates to	Section c) Generates new knowledge		
Topic			
Question	<p>Please can you clarify:</p> <p>i. What questions are unanswered by the Pilot BioSNG project?</p> <p>ii. What questions are unanswered by the DfT funding?</p> <p>iii. Subject to (i) and (ii), what questions will be answered by the additional NIC funding?</p>		
Notes on question			
Answer	<p>The Pilot Plant Project is focused on proving the technical feasibility of the thermal production of BioSNG from waste. The DfT project aims to establish the commercial viability of producing BioSNG for use in vehicles. The NIC funding for this Project will extend the DfT project to enable a significant increase in the amount of renewable gas injected into the gas grid for use in transport and heating.</p> <p>The questions unanswered by the Pilot Plant project relate to the commercial risks of building and operating a BioSNG facility. Funders and other stakeholders in the technology require these to be directly addressed before they are willing to participate in projects to construct commercial BioSNG facilities. These questions are discussed in Section 5.1 of the Project Submission and include:</p> <ul style="list-style-type: none">• What are the costs, timescales and contractual structure for a commercial facility?• What performance guarantees can be provided?• What are the waste and fuel off-take contracting structures?		

- What are the implications of complying with grid network entry requirements?
- What are the revenues and costs of operation?
- What are the roles, responsibilities and procedures of commercial plant staff?
- How will a commercial plant be operated safely?

The Pilot Plant does not answer these questions because it operates on a very small scale in relatively short experimental campaigns and was constructed as a research and development project.

The DfT project addresses the questions relating to the the construction and operation of a plant that produces BioSNG but leaves the following questions unanswered:

- What are the fuel off-take contracting structures and can they be consumated for fuel produced from such a novel facility?
- What are the implications of complying with grid network entry requirements?

The contracting structure for the sale of compressed gas to a filling station is relatively simple bilateral agreement between the fuel producer and off-taker.

Off-take through the grid is more complex as it requires a gas shipper and gas supply company as well as the eventual off-taker. All the parties need to understand BioSNG production to agree contracts that reflect the balance of risks that each bears.

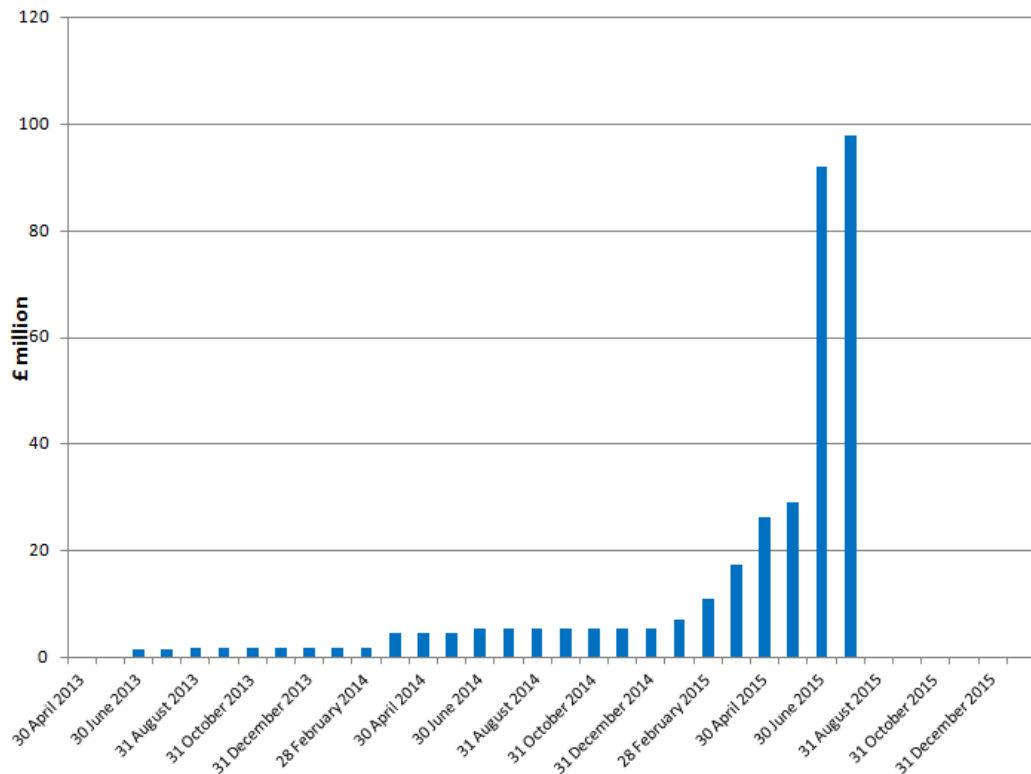
In general, the specification for compressed natural gas (CNG) transport fuel is less stringent than that required for GS(M)R. The specification for CNG transport fuel is currently under development by the European Committee for Standardisation covering gross calorific value, levels of inerts and hydrogen and Wobbe Number. Furthermore vehicles do not require the levels of higher order hydrocarbons necessary to meet the calorific value requirement of the UK grid, and indeed a higher methane number is preferred.

Injecting gas to the grid requires the product to meet a tighter specification than required for a transport fuel.

The key additional question answered as a result of the NIC funding is:

- Can the BioSNG technology deliver grid quality gas reliably under normal commercial conditions?

This can only be achieved by a facility with the grid connection that the NIC funding allows. This has been shown through the experience of Anaerobic Digestion. The following graph shows payments to UK biomethane plants under the renewable heat incentive.



The first AD plant producing biomethane started operations in Germany in 2006 and the first RO supported AD plant producing electricity in the UK started operation in 2008. Whilst the technology had been proven in Germany, the first 2 UK projects to inject biomethane into the grid required capital grant funding, with first injection in 2010¹. Subsequently, support for biomethane production under the RHI was introduced in 2011.

Demonstrated commercial operation over time was required to catalyse the wider industry with the substantial growth in injection of biomethane to the grid taking place this year.

This demonstrates the importance of providing a commercial demonstrator. Evidence of biomethane technologies from Germany or the use of AD to generate power did not provide stakeholders with enough confidence to develop facilities. Catalysing the roll out of biomethane plants required an full chain demonstration project under the same conditions as commercial plants and in the UK. Our project seeks to be that catalyst necessary to expand renewable gas production to use a much wider range of feedstocks to deliver substantial quantities of renewable heat and transport.

¹ Note that the proposed consortium has first hand experience of both these plants with National Grid and CNG Services being instrumental in their conception and delivery

Attachments