Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form. The full completed submission should not exceed 6 pages in total.

NIA Project Registration and PEA Document

Date of Submission

Dec 2013

Project Reference Number

NGGDGN01

Project Registration

Project Title

BioSNG Demonstration Plant

Project Reference Number

NGGDGN01

Project Licensee(s)

Cadent

Project Start

April 2014

Project Duration

3 years and 0 months

Nominated Project Contact(s)

Steven Vallender, Asset Strategy and Investment Manager

Project Budget

£4,251,000.00

Summary

This project seeks to prove the technical and economic feasibility of thermal gasification of waste to renewable gas (bio-substitute natural gas or BioSNG), through constructing a demonstration plant to take an existing stream of syngas and upgrading it to GSMR quality gas. If successful this will increase the potential availability of renewable gas in the UK by 100TWh.

It will test and demonstrate this by taking a waste derived syngas from Advanced Plasma Power's (APP) Gasplasma® demonstration facility, located at Swindon and upgrade it through a dedicated conversion and clean up plant to a pipeline quality (Gas Safety Management Regulation Specification or GSMR) gas.

The build and operation of the processing plant and test programme will test and demonstrate the concept and design of how syngas from waste can be converted to pipeline quality gas. It will inform the design and economics of subsequent commercial plants that could significantly increase the potential of renewable gas in the UK.

The project follows on from IFI79 (Feasibility and Design of a BioSNG Demonstration project). The project is expected to take approximately 3 years, split into a number of phases including final design and safety, build, commission and detailed test programmes. The planned start date is the 1st April 2014 with an expected completion date of 31st March 2017.

The project will by demonstrating technology to show how biogenic waste and biomass can be converted into a BioSNG gas stream which can provide renewable gas into the grid at the correct pipeline specifications. By doing this it will ensure that there is an alternative source of fuel to deliver low carbon heat other than converting domestic and commercial heat demand to electric heat pumps. The avoided costs of conversion to electric heat sources for gas customers has been estimated at £25bn, whilst the cost of decommissioning the gas distribution networks would be a further £8bn.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

Method(s)

Scope

Objective(s)

The challenge therefore is providing cost-effective bio-methane at sufficient scale to meet a greater proportion of the future heat demand and thereby avoid the significant costs to the consumer of decarbonisation via other routes.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

n/a

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

n/a

Geographical Area

Revenue Allowed for the RIIO Settlement

Indicative Total NIA Project Expenditure

Project Eligibility Assessment Part 1

There are slightly differing requirements for RIIO-1 and RIIO-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RIIO-2 / RIIO-1).

Requirement 1

Facilitate the energy system transition and/or benefit consumers in vulnerable situations (Please complete sections 3.1.1 and 3.1.2 for RIIO-2 projects only)

Please answer **at least one** of the following:

How the Project has the potential to facilitate the energy system transition:

n/a

How the Project has potential to benefit consumer in vulnerable situations:

n/a

Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

Project must have the potential to deliver a Solution that delivers a net benefit to consumers of the Gas Transporter and/or Electricity Transmission or Electricity Distribution licensee, as the context requires. This could include delivering a Solution at a lower cost than the most efficient Method currently in use on the GB Gas Transportation System, the Gas Transporter's and/or Electricity Transmission or Electricity Distribution licensee's network, or wider benefits, such as social or environmental.

Please provide an estimate of the saving if the Problem is solved (RIIO-1 projects only)

n/a

Please provide a calculation of the expected benefits the Solution

n/a

Please provide an estimate of how replicable the Method is across GB

n/a

Please provide an outline of the costs of rolling out the Method across GB.

n/a

Requirement 3 / 1

Involve Research, Development or Demonstration

A RIIO-1 NIA Project must have the potential to have a Direct Impact on a Network Licensee's network or the operations of the System Operator and involve the Research, Development, or Demonstration of at least one of the following (please tick which applies):

☐ A specific piece of new (i.e. unproven in GB, or where a method has been trialled outside GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).

☐ A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems and/or software)

☐ A specific novel operational practice directly related to the operation of the Network Licensees system

☐ A specific novel commercial arrangement

RIIO-2 Projects

☐ A specific piece of new equipment (including monitoring, control and communications systems and software)

☐ A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is

unproven

☐ A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)

☐ A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology

☐ A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution

☐ A specific novel commercial arrangement

Specific Requirements 4 / 2a

Please explain how the learning that will be generated could be used by the relevant Network Licensees

n/a

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RIIO-1 only)

n/a

☐ Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

Is the default IPR position being applied?

☐ Yes

Please demonstrate how the learning from the project can be successfully disseminated to Network Licensees and other interested parties.

Please describe how many potential constraints or costs caused, or resulting from the imposed IPR arrangements.<

Please justify why the proposed IPR arrangements provide value for money for customers.

Project Eligibility Assessment Part 2

Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNF, NIA, NIC or SIF projects already registered, being carried out or completed.

Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

n/a

If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.

n/a

Additional Governance And Document Upload

Please identify why the project is innovative and has not been tried before

n/a

Relevant Foreground IPR

n/a

Data Access Details

n/a

Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

n/a

Please identify why the project can only be undertaken with the support of the NIA, including reference to the specific risks(e.g. commercial, technical, operational or regulatory) associated with the project

n/a

This project has been approved by a senior member of staff

☑ Yes