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

Jan 2014

Project Reference Number

NIA_NGGD0002

Project Registration

Project Title

Development of Packaged Solution for Bio Methane Injection

Project Reference Number

NIA_NGGD0002

Project Licensee(s)

Cadent

Project Start

June 2011

Project Duration

3 years and 10 months

Nominated Project Contact(s)

Nathan Turner – Project Manager and Andrew Newton – Innovation Portfolio Manager

Project Budget

£852,113.00

Summary

The scope of this project is as follows:

- Stage 1 - Detailed Design: This stage will include the tender process to select a suitable supplier; the design process and internal G17 design appraisal.

- Stage 2 - Installation & Commissioning: This stage will cover the purchase of equipment and physical installation/commissioning of the chosen solution at the Stockport site, plus development of bespoke design guidance for the industry to use for future bio-methane connections.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

Currently there is no one single integrated packaged kit to allow bio-methane producers to connect to the gas network. This means that there is no straightforward route, thus reducing the incentive for bio-methane producers to connect to the network.

By facilitation of bio-gas connections with a packaged unit to enable injection of renewable gas into the gas distribution network, the aim is to connect 80 bio-gas connections to the network at an average output of 450m3/h, by 2020. This will allow National Grid to contribute 3.5 TWh of biogas into the network, which meets the environmental targets set at 50% renewable gas. Use of bio-methane on the gas distribution network will help to reduce the future dependency on fossil fuels thus ensure security of supply for the future, whilst using and sustaining the existing energy infrastructure.

Method(s)

This project will undertake a detailed design and G17 design process to identify the proposed standard bio-gas connection solution. This will be followed by installation and commissioning to cover physical installation of the chosen solution at the Stockport site. Finally development of bespoke design guidance will take place for the gas industry and Network Licensees to use for future bio-methane connections.

Scope

The scope of this project is as follows:

Stage 1 - Detailed Design

- This stage will include the tender process to select a suitable supplier; the design process and internal G17 design appraisal.

Stage 2 - Installation & Commissioning

- This stage will cover the purchase of equipment and physical installation/commissioning of the chosen solution at the Stockport site, plus development of bespoke design guidance for the industry to use for future bio-methane connections.

Objective(s)

The aim of this project is to develop an integrated packaged solution to allow bio-methane producers to connect to the <7 bar network with potential to apply to > 7 bar network.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Success of this project will be identification and confirmation of a fit for purpose, cost effective and efficient packaged solution that can be deployed for the majority of requested bio-methane connections in the future.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

Installation and commissioning at a single site to prove the chosen design solution. To produce a bespoke design as there is currently no off-the-shelf product available in the marketplace to facilitate bio-gas connections in a single packaged solution.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

Stockport, North West

Revenue Allowed for the RIIO Settlement

No revenue allowed for in the RIIO Settlement

Indicative Total NIA Project Expenditure

£529,734 total IFI expenditure

£322,379 total NIA expenditure

£852,113 Total 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)

When the expected 80 bio-gas connections are connected to the National Grid Gas Network, at an average output of 450m3/h, it is expected that the Exit costs saved could be circa £7.3m per annum from 2020.

Please provide a calculation of the expected benefits the Solution

(Taking Base Cost as business as usual i.e. £0 datum) minus (Method Costs, can be considered cost of project £853k, reduced by £91k Exit charges saved per annum)

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

This Method could be applied to future bio-methane connections across the whole of GB.

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

The design guidance for packaged bio-methane connections will be at nil further cost to the industry, as per the output from this project.

Actual physical cost to provide bio-methane connections will be on a site-by-site basis and will vary with capacity and site conditions.

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

The learning generated from this project will inform relevant Network Licenses how to replicate the method of a packaged solution for bio-methane injection, for use on their own networks.

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

Not applicable – this issue is not confined to NGG therefore please refer to i) above.

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

Is the default IPR position being applied?

☑ Yes

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