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

Mar 2015

Project Reference Number

NIA_NGN_112

Project Registration

Project Title

Low Carbon Garbage Collection – City Blue Print

Project Reference Number

NIA_NGN_112

Project Licensee(s)

Northern Gas Networks

Project Start

January 2015

Project Duration

1 year and 9 months

Nominated Project Contact(s)

Dan Sadler (Head of Head of Energy Futures) & Chris Barron

Project Budget

£124,445.00

Summary

The project will expand on the feasibility study undertaken by Leeds City Council (LCC) to produce a blueprint for a low carbon refuse collection strategy in the LCC area.

Third Party Collaborators

Leeds City Region Enterprise Partnership

Leeds City Council

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

Northern Gas Networks (NGN) manages the transportation of gas to some 2.7 million homes and businesses across the north east of England, Northern Cumbria and most of Yorkshire. One of NGN's RIIO-GD1 objectives is to facilitate the onset of the bio methane market, within our geographical network area and our success against this objective is measured by the total volume of bio-methane connected.

Currently there are no councils in the NGN area that are segregating food waste at source to produce biomethane for injection to the gas grid. The main constraints being cost, suitable site location and technical knowledge.

Method(s)

NGN will work with Leeds City Council (LCC) to build on the councils existing research into food waste collection at source, to develop

a “blue print” for LCC and other city councils to utilise food waste collection as food stock for the production and injection of bio methane gas into the local gas distribution network.

The project will study the feasibility of creating a Carbon Neutral Garbage Collection, where the food waste collected will be taken to a city based AD to convert into Bio-methane. The project will also review the LCC Business As Usual (BAU) waste collection costs and identify available grants and private funding options for the scheme.

Scope

The project will expand on the feasibility study undertaken by Leeds City Council (LCC) to produce a blueprint for a low carbon refuse collection strategy in the LCC area.

Objective(s)

The objectives of the project are:

To deliver a “Low Carbon Garbage Collection – City Blue Print” detailing how a city scaled Carbon Neutral Garbage Collection can be achieved and implemented using domestic and commercial food waste converted to bio methane and injected into the NGN network

The blueprint will address the following key points:

1. The modifications and commercial models for the existing LCC Refuse Collection Vehicle (RCV) fleet, and the rollout strategy required to implement the segregation and collection of food waste by LCC
2. The Feasibility of developing a suitably sized Anaerobic Digestion (AD) plant (potentially on an exiting redundant NGN holder site), with the capability of producing “green” bio methane gas for injection into the NGN distribution network.
3. The “critical mass” of food stock availability and commercial modeling required to make the scheme feasible
4. The timescales required to develop and implement each phase of the scheme
5. Identifying the available private and public funding options for the scheme
6. The overall carbon reduction and emission abatement benefits of the scheme

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The success of the project will be measured by the contents of the “Low Carbon Garbage Collection – City Blue Print” against the following output criteria

The blue print will research and deliver the following information:

-

Identify and rank the top three viable scenarios for:

- Upgrade options for the LCC RCV fleet to accommodate the segregation and collection of domestic and commercial food waste
- A suitably sized AD plant in the LCC geographical area, potentially located on a redundant NGN holder site and connections to the NGN network

Cost estimates (+/- 30%) and indicative timelines for the following:

- The implementation and roll out of segregated food waste in the LCC area
- The development of a suitably sized AD plant and connections to the NGN network

Financing options:

- Identification of UK and European funding grants and options applicable to the scheme
- Identification of private funding options for the construction and operation of the AD plant.

Benefits analysis:

- Calculate the overall carbon reduction and emission abatement
- Deliver a complete quantitative and qualitative benefits analysis

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

The project requires a mixture of inputs from both NGN and Local Authority experts within the Waste Collection industry. Northern Gas Networks staff and specialist consultants, from their project management framework agreement will provide the supply chain industry expertise and knowledge of the gas distribution network. This mix of NGN expertise and waste collection industry knowledge will minimise costs by using specialists to undertake part of the initial research. This will also ensure the outcomes are delivered to the required timeline.

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL5 Pilot Scale

Geographical Area

The project will look in detail at Leeds (with potential to broaden to other areas dependant on food stock quantities and collection scenarios), located within the Northern Gas Network region, as a typical city in the United Kingdom that produces a sizeable amount of domestic and commercial food waste. The blueprint of this can be repeatable across all cities in the UK.

Revenue Allowed for the RIIO Settlement

n/A

Indicative Total NIA Project Expenditure

£99,556 external

£24,889 internal

£124,445 total costs

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)

Due to the research nature of this project It is impossible at this stage to calculate the ultimate quantum of cost benefits this research will provide. However, the project will identify the most efficient, cost effective options to implement low carbon garbage collection within the LCC. The production of bio methane has previously been identified as a key component of the transition to a low carbon economy.

Please provide a calculation of the expected benefits the Solution

Research Project

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

The information gained from this research will be applicable to all GB Gas Distribution Networks, in geographical areas identified with cities sizeable enough to produce enough food waste.

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

The final report will be made available to all Local Authorities and GDN's at zero cost

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

☐ 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 research from the project will identify the optimum collection options for domestic and commercial food waste within the LCC. The "Low Carbon Garbage Collection – City Blue Print" will clearly identify technical and commercial options for the use of domestic and commercial food waste as food stock for the generation of "green" gas within a typical city environment. It is anticipated that the blueprint could be used by Local Authorities across the UK. This learning will be applicable to other Gas Distribution 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)

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

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

- [x] Yes