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_NGGD0005

Project Registration

Project Title

Venting Controllers

Project Reference Number

NIA_NGGD0005

Project Licensee(s)

Cadent

Project Start

July 2012

Project Duration

1 year and 3 months

Nominated Project Contact(s)

Shaun Bennett and Darren White

Project Budget

£369,911.00

Summary

The scope of this project includes:

- Development of a test method to measure the vent rates using standard flow metering approaches, the GL high flow sampling system or similar apparatus

- Laboratory tests on a Bristol Babcock and Becker controller with tests to establish that the manufacturers quoted release rates can be validated, the correlation between control pressure and vent rate and the validation of the off-site measurement method

- Site tests on up to ten sites covering all the controller vents at each site. This work will focus on individual controllers, investigating the impacts of actuation pressure, controller type and other installation specific parameters. The tests will typically be completed within one-days' site visit, although retesting may be required. During these visits an assessment will be made on the practicality of vent modification for the continuous 24-hour testing described below

- Site test work at four selected sites to cover a continuous 24-hour period at three times over the year – proposed mid-summer, "shoulder" month and mid-winter, to establish the impact of flows and network demand

- Correlate the measured emission rates/controller type with data from DNCC to establish.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

Currently National Grid Gas Distribution does not have a robust methodology to determine emission rates from each of the sites in

order to determine potential carbon emission reduction by removing gas venting on these sites.

There are over 130 Pressure Reduction stations operated by National Grid using pneumatic controllers. This project concerns venting from controllers that are potentially a significant source of gas emission to the atmosphere.

Method(s)

This project will undertake a practical study to gain a better insight on the actual leakage rates. This will be= conducted through development of a test method and a series of site and laboratory tests to measure the actual vent rates over a specific testing cycle.

Scope

The scope of this project includes:

- Development of a test method to measure the vent rates using standard flow metering approaches, the GL high flow sampling system or similar apparatus.
- Laboratory tests on a Bristol Babcock and Becker controller with tests to establish that the manufacturers quoted release rates can be validated, the correlation between control pressure and vent rate and the validation of the off-site measurement method.
- Site tests on up to ten sites covering all the controller vents at each site. This work will focus on individual controllers, investigating the impacts of actuation pressure, controller type and other installation specific parameters. The tests will typically be completed within one-days' site visit, although retesting may be required. During these visits an assessment will be made on the practicality of vent modification for the continuous 24-hour testing described below.
- Site test work at four selected sites to cover a continuous 24-hour period at three times over the year – proposed mid-summer, "shoulder" month and mid-winter, to establish the impact of flows and network demand.
- Correlate the measured emission rates/controller type with data from DNCC to establish

Objective(s)

This one stage research project seeks to undertake a practical study to gain a better insight on the actual leakage rates from selected venting controllers.

This study will be used to inform a potential further piece of work to develop an extended modelling approach to predict the emission rates on a regional basis and to quantify the emission savings through a controller change-out. The expected benefits of this work will be reduced losses of natural gas at Above Ground Installations (AGIs) and reduced carbon footprint for AGI site operations related to valve positioners and controllers.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Success of the project will be a quantifiable methodology for measurement of venting controller emissions at Pressure Reduction stations, and site test output that accurately quantifies actual venting rates.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

Site tests on up to ten sites covering all the controller vents at each, plus site test work at four selected sites to cover a continuous 24-hour period at three times over the year is deemed necessary in order to gain accurate performance reporting and establish the impact of flows and network demand.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL3 Proof of Concept

Geographical Area

Blaby – East Midlands
Hedgerley – North London
Coleshill – West Midlands

Revenue Allowed for the RIIO Settlement

No revenue allowed for in the RIIO Settlement for collection of data or for replacement of venting controllers however Shrinkage allowance £258 million

Indicative Total NIA Project Expenditure

£186,254 total IFI expenditure

£183,657 total NIA expenditure

£369,911 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)

Emissions to be quantified following data capture exercise could be potentially £1 million +

Please provide a calculation of the expected benefits the Solution

Not applicable (Research only)

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

This Method could be applied to venting controllers across the whole of GB, the scale of which will vary upon Network Licensee.

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

The cost to replace existing Venting controller population believed to be in the order of £20 million. Please note this cost is for National Grid UKD only.

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 production of a methodology for the robust assessment of venting Controllers will result in learning that can be applied by all Relevant Network Licensees where assessing the emission rates from controllers is sought.

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

☑ 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