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

Nov 2017

Project Reference Number

NIA_NGN_220

Project Registration

Project Title

AMS Governor Clocks

Project Reference Number

NIA_NGN_220

Project Licensee(s)

Northern Gas Networks

Project Start

December 2017

Project Duration

0 years and 10 months

Nominated Project Contact(s)

Tim Harwood, Head of Major Projects and Maintenance

Project Budget

£66,666.00

Summary

District governors supply gas to homes via the low pressure (LP) distribution mains network. This network still has a large percentage of old cast iron mains that are prone to leakage in proportion to the pressure within the main. The installation of clock control to district governors allows the pressure in the LP mains system to be reduced therefore reducing the amount of leakage from cast iron mains which in turn is costly to networks and disruptive to customers and stakeholders. Clocks have been used for many years but recently the existing clocks have become obsolete as they are no longer supported by manufacturers. There are also networks within NGN that work on fixed pressure and do not have clock control which means the average mains system pressure is higher leading to increased leakage.

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

District governors supply gas to homes via the low pressure (LP) distribution mains network. This network still has a large percentage of old cast iron mains that are prone to leakage in proportion to the pressure within the main. The installation of clock control to district governors allows the pressure in the LP mains system to be reduced therefore reducing the amount of leakage from cast iron mains which in turn is costly to networks and disruptive to customers and stakeholders. Clocks have been used for many years but recently the existing clocks have become obsolete as they are no longer supported by manufacturers. There are also networks within NGN that work on fixed pressure and do not have clock control which means the average mains system pressure is higher leading to increased leakage.

Method(s)

This project is to develop a new type of district governor clock that can be set and operated remotely meaning less visits to site and lower system pressures.

Scope

The scope detailed below is to produce 50 working clocks for a trial on a selected NGN network to test functionality and performance with a view to gaining approval for production to commence.

- Review of Clock specification. Discuss with NGN and finalise.
- Mechanical model available and would include:
  - Mechanical model of clock with valves
  - Assessment of valve and sample.
  - SITA app offline tool - user interface final specification showing local functions available
  - Web Portal - user interface final specification showing functions available.
- Working sample, 2 pcs
  - Fully functional device with installed valve, suitable for lab tests
  - SITA offline tool, preliminary version available for commissioning
  - Review tests with NGN after 2 weeks. Obtain user feedback
- Start Pilot trial with 50 pcs
  - ATEX certified equipment to be installed on sites for validation purpose
  - Final branded devices
  - SITA offline & online beta version available
  - WebPortal – Developed and expanded data presentation to include Clock control
- Deliveries can commence
  - Stable production process
  - SITA final version available
  - WebPortal final version available

Objective(s)

To produce a functioning and cost effective district governor clock that can be operated remotely via SMS text.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

- A report produced from the trial giving feedback on performance
- A production ready cost effective clock that can be made available to the UK gas industry
- A reliable battery in the clock that can last 5 years
- A sim card in the clock that can be any provider and up to 5 years airtime built in
- SITA approval for use in zone 1 atmospheres
- Feedback learning to other GDN's

Project Partners and External Funding

Project 100% funded by NIA
Project partner is AMS (Alternative Metering Solutions)

Potential for New Learning

- Opportunity to produce a new cost effective district governor clock that can be operated by SMS text and has a 5 year battery life.
- Opportunity to reduce average system pressures in the LP distribution mains network therefore reducing leakage and disruption to customers and stakeholders as well as reducing methane emissions to atmosphere.

Scale of Project

Production of 50 clocks for a trial on an NGN selected network that currently does not have clock control on its district governor population

Technology Readiness at Start

TRL5 Pilot Scale

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

A sub network within NGN network

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

External costs - £50,000
Internal cost - £16,666
Total Project costs – 66,666

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)

If the solution proposed is successful then this could save approximately £140k Per annum, in addition to this qualative benefits gained through reduced leakage

Please provide a calculation of the expected benefits the Solution

NGN spend approximately £70k per season visiting governors and adjusting the system pressure to accommodate the change in season. This equates to £140k per year.

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

This will dependent on the size of the network and how many LP district governors are in use. At NGN we have 2600 district governors, if this figure is used to replicate the potential across all GDN's.

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

Use replication of how many sites that NGN have.

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

Currently there are no low cost solutions for enabling low pressure control on our district governors. The learning a developed solution from this project can be utilized by all GDN's to achieve significant savings in this area.

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

This project will address the asset and network management area of our innovation strategy. The ability to remotely control LP district governor pressure will provide significant savings which can be passed onto the customer.

☑ 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

Ageing district governor clocks have always been suitable to carry out the task of managing low pressure from our district governors however, this technology is extremely old and requires individuals to travel to site and set the clocks to the appropriate pressure. There is current technology on the market that can manage this process but it is extremely expensive and potentially overcomplicated for the task of managing LP pressure.

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

The new solution will use sim card technology which will allows us to remotely set the LP pressure. The proposed solution still requires development and testing at a lab scale to ensure that it operates as expected, once the concept is proved 50 prototypes will be developed and installed across NGN's network. The prototypes will then be monitored to ensure they are fit for purpose. The reasons above are why this project should be funded through the NIA mechanism.

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

The technical development required for this technology warrants the project to be undertaking using the NIA funding. The current LP management technology does not meet the businesses CBA for installation on our district governors. The proposed solution is not a market ready product and requires further development to meet the project objective.

This project has been approved by a senior member of staff

- [x] Yes