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 2016

Project Reference Number

NIA_NGN_119

Project Registration

Project Title

Alternative ECV Exchange Kit

Project Reference Number

NIA_NGN_119

Project Licensee(s)

Northern Gas Networks

Project Start

March 2016

Project Duration

0 years and 7 months

Nominated Project Contact(s)

Northern Gas Networks - Brian Bennett, Wales & West Utilities - Lucy Mason

Project Budget

£17,800.00

Summary

The Scope of this Project is to undertake the design, prototype development and trial of an alternative ECV exchange kit for use in semi-concealed meter boxes.

The Project stages are:

- Design and Development
- Prototype Manufacture and Internal Testing
- Modifications to Design
- Field Trials

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

An ECV exchange would usually be carried out when there is a gas escape or when there is gas being let off by the valve itself. Currently exchanging an ECV on a property with a semi-concealed meter requires isolating a customer's gas supply. This involves a two man team digging on the customer's property to access the service pipe and squeeze off the gas supply. Once the flow of gas has been stopped it is then possible to safely exchange the ECV and carry out a purge and relight. This whole process is very time consuming and involves interrupting the customer's gas supply for around four hours and in some cases it can be longer, not to mention the cost of manpower and reinstatement.

There is currently a meter exchange kit for use on standard (i.e. straight-through as opposed to angled) ECVs but it cannot be used on

a semi-concealed meter as the kit contains stoppers of a rigid construction which will not bend around the angled ECV.

This Project aims to develop and trial a kit suitable initially for angled ECVs but potentially for straight-through valves also. This will allow for a simple above ground isolation of the gas flow slightly upstream of the ECV without the need to excavate and reinstate.

Method(s)

This Project is the result of Call for Innovation led by NGN in June 2015 to identify appropriate suppliers and viable solutions to the above problem.

Following a process of market research the supplier intends to design, develop and trial a solution to meet the following initial design criteria as set out in the Call for Innovation:

- Easy to fit and remove
- Be used by a single operative
- Re-useable
- Be commercially available at a comparative price point to that of the kit used for straight-through ECVs

The intended solution will consist of a hand pump and an inflatable stopper that can be inserted through the ECV and isolate upstream. Initial designs and prototypes will require development to demonstrate how the product will perform in the field.

Scope

The Scope of this Project is to undertake the design, prototype development and trial of an alternative ECV exchange kit for use in semi-concealed meter boxes.

The Project stages are:

- Design and Development
- Prototype Manufacture and Internal Testing
- Modifications to Design
- Field Trials

Objective(s)

The Project seeks to prove that the intended solution is able, through trialling, to demonstrate that it is a technically feasible, more efficient and customer friendly alternative to current methods of performing an exchange on a semi-concealed meter box ECV.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Following completion of the development and trial of the prototype product:

- The GDNs would be in a position to decide with confidence whether the concept is technically capable of performing the desired task
- The product would be ready to take forward to the internal GDN approval, manufacture and roll-out

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

The Project intends to prove through initial design, development, internal testing and evaluation that the concept can provide the desired solution. Subsequent field trials of the prototypes and further evaluation will aim to demonstrate that the products can provide the desired benefits in the live environment.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

The Project will be predominantly a design and development exercise in the early stages which will be undertaken by the supplier at their premises.

As part of the later stage the network will identify eight locations on the network in which to trial the prototypes.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

NGN External expenditure - £8,900

NGN Internal expenditure - £2,955

Total NGN expenditure - £11,855

WWU External expenditure - £8,900

WWU Internal expenditure - £2,955

Total WWU expenditure - £11,855

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)

In comparison with current methods the new technique could decrease manpower on site by at least 6 hours per two man gang. Also has additional cost savings of avoided reinstatement costs and of course reduced disruption to customer by avoiding excavating on their property and reducing the time they are without gas.

Please provide a calculation of the expected benefits the Solution

The current cost of an ECV exchange takes on average around 6 hours including reinstatement costs which work out at around £690 per job.

NGN and WWU carry out roughly 230 ECV exchanges on semi-concealed meters a year at a cost of around £158,700, if the new method were to be introduced it would reduce the length of the operation by around 4 hours and also avoid reinstatement costs so has the potential per job to reduce costs by £510. This works out at as a cost saving of around 74% on average per job.

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

All Network Licensees undertake ECV exchanges in semi-concealed meter boxes and undertake the current Methods outlined above. The solution would be fully replicable across all GDNs

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

Upon manufacture of volumes of around 200+ the kits are intended to be commercially available at a price point of £250.

The solution is intended to be modular, therefore allowing for the replacement of component parts at lower costs when required rather than replacing the full kit.

Initial assumptions indicate that NGN intend for all 240 teams that currently undertake this operation will require a kit suggesting an initial outlay within NGN of £60,000

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 GDNs will develop knowledge that the development and deployment of an inflatable hand held device is capable of performing not only this task but potentially further tasks including straight-through valves. It is possible that there may be other, currently unforeseen, opportunities to utilise either this technology or a similar principle within the network.

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

☑ Yes