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

Dec 2014

Project Reference Number

NIA_NGN_088

Project Registration

Project Title

Total stub end abandonment

Project Reference Number

NIA_NGN_088

Project Licensee(s)

Northern Gas Networks

Project Start

January 2015

Project Duration

1 year and 1 month

Nominated Project Contact(s)

Ian Waddle, Richard Read, Alec Breen

Project Budget

£302,629.00

Summary

Review existing population of connection types from Tier 1 to Tier 2 & 3 mains. Assessing the technical difficulties for each type of Tee and its population within the network.

Redevelop the existing design of the Stub End delivery product, this will be done at no cost to the project by the project partner.

Undertake off-network testing of new design to be undertaken on at least two different design types.

Undertake two “initial” demonstration trials on NGN’s Network to prove the feasibility of the developed technique.

Carry out a review of feasibility trial.

Undertake a sample population of the commonest connection type and trial on small sample of differing types to tee connections.

Amend recording techniques within systems to ensure accuracy of data is complete.

Produce operational & management procedures along review of existing process to ensure full compliance

Third Party Collaborators

Steve Vick International Ltd

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

GDN's are required to fully abandon all tier 1 mains within the HSE approved programme. This requires the removal of the total pipe length of the whole pipeline so that it no longer transports gas. Where Tier 1 pipes join either a tier 2 or tier 3 pipeline the only existing method available is to remove a section of the parent main.

Removal of the parent main, in many cases, can be extremely expensive, very disruptive to customers and often does not significantly decrease the risk. It is often impractical to abandon these short sections due to traffic sensitivity or where normal working practices are unacceptable to stakeholders.

Research has shown that the main connection to above 9" mains is via very robust heavily constructed tee's, which are classed as part of the tier two or three pipeline. Existing connections on the tier 1 pipeline always result in a short "stub". The opportunity to prevent this "stub" from carrying gas will eliminate both the risk and the major disruption to customers.

An existing method, Live Gas "Stub End" Abandonment, available from Steve Vick International currently does not fully meet the requirement to "fully" abandon the tier 1 pipe as the process requires the operative to pull back the isolation method by 500mm. This leaves a short length of tier 1 pipe transporting gas and hence poses a risk.

Method(s)

To undertake a development and demonstration project with an SME (Steve Vick International) to produce a method with long life abandonment process that removes the risk of Tier 1 pipes connected to tier 2 or 3 pipelines.

Undertake an adaptation of the existing process "Live Gas Stub End Abandonment" to ensure that the whole length of the tier 1 main is removed from risk.

Scope

Review existing population of connection types from Tier 1 to Tier 2 & 3 mains. Assessing the technical difficulties for each type of Tee and its population within the network.

Redevelop the existing design of the Stub End delivery product, this will be done at no cost to the project by the project partner.

Undertake off-network testing of new design to be undertaken on at least two different design types.

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The project has had a few issues on the first trial whereby the foam didn't "go off" as quickly as expected so the ratio of mix to hardener needed to be amended. Also the design of the bag had to change.

The initial design was a "dog bone" shaped bag with an open centre section. This part could be filled through a second umbilical fed through the bag. The foam didn't travel as expected i.e. as it had done in the workshop, so the bag is being redesigned to have an outer layer to contain the foam.

The above has led to a delay in the project and needs to be extended by three months.

Objective(s)

To produce a fit for technique and methodology to fully remove from risk Tier 1 stub ends connected to 9" mains and above.

Introduce a new product or service to the sector for decommissioning pipes in this category without the need for major customer disruption.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Gain approval for product to be used on the gas network

Introduce, from a remote location, an isolation technique that 100% removes stub end tier 1 pipes connected to tier 2 and 3 parent mains

Ensure that the new technique complies fully with Stub End Policy and data is captured in recording systems.

Project Partners and External Funding

Steve Vick International self-funding all development of proposed redesigned delivery product

Potential for New Learning

The networks do not a have a fully approved process that guarantees the full removal of risk of tier 1 pipes connected to tier 2 or 3 parent mains.

The aim of this development is to learn if a redesigned delivery system can completely remove the risk of a stub end pipe

Scale of Project

The early off site trial will determine if the system is feasible. This reduces the cost of the overall project, removes any potential risk to the network and provides draft of operating procedure.

Trialling two sites will deliver learning of completeness due to additional parent main surveying and robust QA / QC assessments. It will also allow improvements to the operating procedures and develop draft management procedures. Asset owner approval will be required to sign off the additional trials at this stage.

Support will be gained via the HSE for this project to ensure this fully complies with their expectation that the technique fully abandon the tier 1 pipeline.

In order to gain knowledge and learning across a range of situations. To allow testing of method and techniques to support the delivery and provide robust data the project will undertake around 15 of the most popular connection type and if the opportunity arises a small number of different types of tee connections.

This is required due to the number of project planned each year across NGN and other GDN's.

Technology Readiness at Start

TRL6 Large Scale

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

This stage will be completed with NGN's geographical area. However, should an opportunity arise consideration will be given to undertake a small number with other networks to assist in sharing and learning.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

Total External Costs £227,199.00

Total Internal Costs £75,430.07

Total Project Costs £302,629.07

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)

Existing tier 2 or 3 cut outs cost the network around £10,000 per occasion, if the method process successful the likely cost will be around £5,000 per occasion.

Please provide a calculation of the expected benefits the Solution

Base method £10,000, Baseline cost, £5,000

NGN will need to complete around 800 over the period of RIIO saving £4m

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

NGN believe this would be replaceable across all 8 networks saving around £32m over the 8 years of RIIO

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

At this stage roll out costs are not established but should be fairly modest, not exceeding £200,000

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

☐ 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 from this project determine if a remote system can be safely used to complete isolate tier 1 pipe connected to tier 2 or 3 pipes. Given the current view by the HSE of our current method the project aims to provide a robust alternative to mains cut outs on large diameter mains.

If successful other networks will learn from the project and be able to implement via the development of procedures.

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.

Discussed this project with other networks and checked with recorded projects and no duplication is envisaged.

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