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

Apr 2020

Project Reference Number

NIA_SGN0155

Project Registration

Project Title

I-Branch Seal

Project Reference Number

NIA_SGN0155

Project Licensee(s)

SGN

Project Start

April 2020

Project Duration

0 years and 6 months

Nominated Project Contact(s)

Stuart Sherlock

Project Budget

£13,359.00

Summary

Water can enter our low-pressure distribution network in several ways. For example, water can enter from; corrosion holes in metallic mains, degradation of lead yarn and mechanical joints, and mains fractures such as third-party damage. Over time the volume of water contained within the pipe will begin to rise and eventually the water will extend along the pipe, mixing with the gas and disrupting the supply of gas.

This project looks to develop a seal that will allow inspection and water extraction to be carried out simoultanously.

Nominated Contact Email Address(es)

sgn.innovation@sgn.co.uk

Problem Being Solved

Water can enter our low-pressure distribution network in several ways. For example, water can enter from; corrosion holes in metallic mains, degradation of lead yarn and mechanical joints, and mains fractures such as third-party damage. Over time the volume of water contained within the pipe will begin to rise and eventually the water will extend along the pipe, mixing with the gas and disrupting the supply of gas.

Innovation projects have been developed to tackle water extraction within the mains such as "NIA_SGN0027 Water Extraction Reel & Y Branch". This, combined with the recently developed core hole equipment from "NIA_SGN0052 Core Drilling and Flow Stop WASK" would allow a more rapid response from water ingress events.

Method(s)

To further enhance these processes this project will involve the development and testing of a new seal design for the synthotech keyhole camera designed as part of the Core Drilling and Flowstop project. When completed the developed core I-Branch Seal will be rolled out into the business and incorporated with the existing water extraction reel to provide a truly keyhole solution to water ingress.

Project will be carried out with partners Pipeline Technology where terms and conditions will be set as per previous project agreements with Pipeline Technology. The project will have a start Technology Readiness Level (TRL) of 4 and ending TRL of 8.

Scope

The aim of this project is to develop a new seal design to allow for keyhole camera and water extraction. This will involve carrying out design and development of the existing seal, inhouse testing and field trials to demonstrate the suitability of the developed I-Branch Seal.

Objective(s)

The objectives of the project are to:

1. Development
Modify the design of the existing seal that has been previously tested to allow use with the new core drilling equipment.
Manufacture mould and produce samples for testing.

2. Testing
Carry out testing procedure on the modified seals to ensure compliance with current standards.
Produce summary report including test evidence to support SGN/PM/G/23 submission.

3. Production
Production of 6 units for field trials.

4. Field Trial
Carry out agreed number of field trials including any modifications required to ensure seal is fit for purpose.

5. Project Closure
Pipeline Technology to produce final project closure report in SGN format detailing all development, testing, field trials and feedback.
Report to provide conclusion and recommendations for potential implementation of the I-Branch Seal into SGN business as usual.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The following success criteria for the project include the completion of:

- Development of existing seal that meets current testing requirements.
- Successfully complete inhouse testing and compile results against existing standards.
- Produce 6 units ready for field trials.
- Successfully complete field trials.
- Completion of a final project report outlining points above.

Project Partners and External Funding

Pipeline Technology

Potential for New Learning

The project aims to assist current practices allowing for camera and water extraction to be carried out simultaneously and increase the potential use of existing Core and vac technology.

Scale of Project

The project involves carrying out inhouse testing to develop the existing seal. This will be followed by live field trials to test the new seal design.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

The inhouse testing will be carried out at Pipeline Technology site. Field trials will be carried out at SGN sites.

Revenue Allowed for the RIIO Settlement

If the project is successful, the developed seal has the potential to assist camera inspection and water extraction by allowing both activities to be carried out simultaneously.

Indicative Total NIA Project Expenditure

The total project expenditure is £13,359, 90% (£12,023) of which will be recovered via the NIA funding mechanism in line with the funding conditions.

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)

It is expected that if successful this project could provide Network Licensees with a more efficient method of carrying out camera inspection and water extraction, therefore providing net financial benefits to customers.

Please provide a calculation of the expected benefits the Solution

As it is anticipated that both processes can be carried out simultaneously it is expected that a 50% saving can be made.

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

This process is applicable to all Gas Networks.

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

Cost for unit would be determined on completion of the project.

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

This project applies to all Network Licensees as water ingress is an issue across the UK.

The outputs will be presented in a clearly defined report that will be available to the Gas Networks on request, this will allow the GDN's to make informed choices as to whether to invest in this technology.

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

Within the innovation strategy key 'Innovation Themes', this project primarily addresses 'Safety and emergency'.
☑ 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.

A review has been made of all other Network Licensees and no other similar projects have been carried out.

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

Current practices require camera inspection and water extraction to be carried out separately. This method would allow for more efficient working when removing water ingress. This also relates to several other develop innovation projects including "NIA_SGN0027 Water Extraction Reel & Y Branch" and "NIA_SGN0052 Core Drilling and Flow Stop WASK".

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

This project involves the development of a new seal which requires field trials.

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

A review of all other Network Licensees Innovation Funding Incentive Annual Reports and NIA portfolios has been performed and no similar projects have been identified.

This project has been approved by a senior member of staff

☑ Yes