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NIA Project Registration and PEA Document

Date of Submission

Jan 2014

Project Reference Number

NIA_NGGD0006

Project Registration

Project Title

Sealback II

Project Reference Number

NIA_NGGD0006

Project Licensee(s)

Cadent

Project Start

November 2012

Project Duration

2 years and 11 months

Nominated Project Contact(s)

Andrew Farnfield and Andrew Newton

Project Budget

£256,826.00

Summary

The scope of this project is to incrementally innovate the existing Sealback I system, through development and field trial of the Sealback II technique. In addition this will include production of relevant training material, and development of a strategy for efficient utilisation and deployment. Sealback II will have better support from CCTV systems that are now widely used. This solution needs to be for Low Pressure mains use only with minimum insertion distance of at least 20m of replacement pipe with a stretch target of 30m, up to 8" metallic 'child' main leading on to any size parent main.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

The existing Sealback I technique for live mains transfer has several limitations in that it does not work effectively in situations where tapered pipe sections or change in pipe diameters are encountered. It is also limited in the length of main that can be inserted and obstructions to the insertion process within the main cannot be easily seen or dealt with. Sealback II is to be developed, to overcome these limitations.

Method(s)

This project will build upon the success of the Sealback II feasibility study which was previously carried out under the Innovation Funding Incentive (IFI).

The feasibility study proposed the use of an innovative expanding sealing bag nose cone, as an identifiable solution.

This project will look at the development and trialing of the identified 'Sealback II' solution and incorporation of camera technology advances, developing and recommending an appropriate sealant, and to agree a suitable implementation strategy and delivery method.

Scope

The scope of this project is to incrementally innovate the existing Sealback I system, through development and field trial of the Sealback II technique. In addition this will include production of relevant training material, and development of a strategy for efficient utilisation and deployment. Sealback II will have better support from CCTV systems that are now widely used. This solution needs to be for Low Pressure mains use only with minimum insertion distance of at least 20m of replacement pipe with a stretch target of 30m, up to 8" metallic 'child' main leading on to any size parent main.

Objective(s)

This project seeks to develop and successfully trial an improved method to replace short lengths of metallic main in specific locations of engineering difficulty (short lengths of main that connects onto its parent main in a major road junction) in a safe, efficient and practical manner and to agree an efficient implementation strategy for the technique. The primary anticipated benefits of this project will be that Sealback II will allow mains located in areas of engineering difficulty to be replaced via live transfer leading to a reduction in operational expenditure and risk. Also reduced environmental impact by minimizing associated works as above including the requirement for landfill of excavated spoil.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Successful development of the Sealback II technique, proven to accommodate tapered pipe sections, change in pipe diameters, etc, for mains up to 8" diameter and up to 30m in length

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

This project includes prototype design, manufacture of fittings, identification of suitable sealants and delivery methods, a limited amount of lab and field testing to a scale which is deemed necessary in order to gain accurate performance reporting to gauge the acceptability of applicability of the Sealback II solution.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

Lab Testing – Harrogate, North Yorkshire and Hitchin, Hertfordshire
Field Trials – Gas Distribution Networks

Revenue Allowed for the RIIO Settlement

Tier 1 mains replacement/risk removal under Efficient and Safe Work Delivery and Removal of Risk.

Total Repex in allowance = £3.2bn.

Allowances as per Ofgem RIIO-GD1 Final Proposals and all figures are in 2009/10 prices.

Indicative Total NIA Project Expenditure

£144,338 total IFI expenditure

£112,488 total NIA 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)

Will reduce/minimise excavation and disruption in main carriageways delivering financial saving and customer satisfaction benefits.

Please provide a calculation of the expected benefits the Solution

(Typical current method of replacement (conservative estimate) £12k per instance) – (New technique estimate at £4k per instance) = £8k at each, of at least 12, field trial sites within the project.

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

This Method could be applied to short length stub pipe replacement across the whole of the UK, the scale of which will vary upon Network Licensee asset population characteristics.

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

Training costs and some specific tooling and equipment to isolate the section main concerned and deliver the foam. Dependent on method of rollout.

This will not be a specialist contract activity but Networks may chose to rollout widely or restrict to specialist internal teams.

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 trialed 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 successful development of and demonstration of Sealback II, as well as production of the relevant training material, will result in a solution and associated learning that can be applied by all Relevant Network Licensees where a solution to the requirement to replace short length stub pipes in areas of engineering difficulty 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)

Tier 1 mains replacement/risk removal under Efficient and Safe Work Delivery and Removal of Risk

- 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