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

Jan 2015

Project Reference Number

NIA_NGGD0050

Project Registration

Project Title

WEKO Seal Removal

Project Reference Number

NIA_NGGD0050

Project Licensee(s)

Cadent

Project Start

January 2015

Project Duration

1 year and 3 months

Nominated Project Contact(s)

Neil Russell – Innovation Project Delivery Officer, James Clarke – tRIIO Innovation Manager

Project Budget

£26,400.00

Summary

- Complete development of the WSR900 so it is fit for use in the field.
- Complete field trials extracting WEKO seals at Goulston Street, SE1 for 100m stretch of 36 inch main

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

Current methods for removing WEKO seals involve human interaction and exposing humans to potential dangerous confined environments. Specialist contractors are used to enter the gas mains deep below the ground and remove the seals by hand. This process takes time, is expensive and creates unnecessary risk to enable large diameter gas pipes to be replaced.

This product potentially allows for WEKO seals to be removed without the need for human risk exposure within the confined spaces of the metallic mains.

Method(s)

It is proposed to develop the WEKO seal removal unit to cater for 36 inch mains and then undertake controlled site trials to assess the safety, practicality and cost benefits associated compared to the current best practice.

Scope

- Complete development of the WSR900 so it is fit for use in the field.
- Complete field trials extracting WEKO seals at Goulston Street, SE1 for 100m stretch of 36 inch main

Objective(s)

- Trial the WSR900 on London's Medium Pressure Network replacement scheme.
- Remove the need for a human to enter the pipe to extract WEKO seals.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

- Increase in safety of our operatives when undertaking replacement activities where WEKO seals have been previously installed
- Feedback from trial participants and stakeholders is positive.
  - Unit is capable of extracting more WEKO seals than current method
- Unit is successful at removing 36inch WEKO seals and returning them to the launch pit.
- Reduce operational injuries and increase ease of use.
- Reduce costs and improvements to operational efficiencies.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

The sites trials will take place on the London Medium Pressure Project. 100m will be identified and the WEKO seals removed using the unit over the space of a week. A final report detailing the findings from the trial will be produced by tRIIO, including ease of use, number of WEKO seals removed a day and total job duration, and make comparisons between use of the WEKO Seal Remover and manual removal.

Technology Readiness at Start

TRL5 Pilot Scale

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

North London

Revenue Allowed for the RIIO Settlement

Tier 3 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

National Grid Gas Distribution –

£19,800 including 10% contingency external spend

£6,600 Internal Spend

£26,400 total NIA spend

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)

The technology if proven would remove the risk of sending a human up a large diameter pipe. While there is no direct cost linked to this the improved safety case for the technology is large. Using HSE figures a single reportable injury could lead to a cost to National Grid of £17,900, including non-financial human and financial costs). The speed of WEKO seal removal using the Flow Stop Service solution compared to manual extraction will be measured during the project; the proposed solution could lead to efficiency savings as more WEKO seals may be extracted in a given period of time.

Please provide a calculation of the expected benefits the Solution

he trial would demonstrate the productivity potential gains that could be seen against a human doing the same task. It also avoids any costs that could be incurred from any injury during manual WEKO seal removal, and the costs of hiring in external contractors to potentially undertake this work on National Grid's behalf. There would also be large reputational damage to National Grid and the gas industry as a whole if an injury was to occur in manual extraction of the WEKO seals.

The current method for removing WEKO seals from large diameter pipes involves a 6-7 man team who have a weekly rate of between £3,225 - £3,745 (not including weekends).

If we take a recent, 280m replacement job undertaken by tRIIO, and assuming that using the new system we would be able to remove double the amount of WEKO seals per day (at the moment we can remove on average 2 seals per day using a person going up the pipe, we are assuming that would double up to 4 per day using the proposed extraction method), the savings on man power alone would be £11,304. If we extrapolate this, per 1km of London MP Replacement with WEKO seals we could save potentially up to £40,104 on man power alone using the proposed WEKO Seal Remover.

With the increase in productivity the job will be completed quicker on site, so there will be savings in lane rental charges and back office costs associated with the site being open, as well as reduction in excavation sizes as there are additional requirements for excavations when sending humans into pipes in association with ventilation and safe access.

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

This process would be transferable across all network licensees.

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

Contractual and commercial processes will be developed when the technology has been fully tested and approved for use.

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

Relevant licensees could use the information gathered from the site trials to design their large diameter replacement projects where WEKO seal removal is required.

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