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

Jun 2019

Project Reference Number

NIA_CAD0040

Project Registration

Project Title

PE Repairs Test Specification

Project Reference Number

NIA_CAD0040

Project Licensee(s)

Cadent

Project Start

June 2019

Project Duration

1 year and 0 months

Nominated Project Contact(s)

Cadent Innovation Team

Project Budget

£27,216.00

Summary

GDNs currently respond to many leaks per year from PE pipes. These can be disruptive to both customers and the local environment. The use of permanent live application repair techniques could offer a significant reduction in the time taken to restore supply and considerably reduce the extent and disruption to the customer. Currently, there is not a fully approved PE Repair specification, which limits potential suppliers to gain the approval for use of appropriate repair systems.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

GDNs currently respond to many leaks per year from PE pipes. These can be disruptive to both customers and the local environment. The use of permanent live application repair techniques could offer a significant reduction in the time taken to restore supply and considerably reduce the extent and disruption to the customer. Currently, there is not a fully approved PE Repair specification, which limits potential suppliers to gain the approval for use of appropriate repair systems.

Method(s)

To realise the benefits of this project, it is expected to finalise and publish an approved Industry specification, the draft document will need to be reviewed and updated in light of the comments received, through consideration of the extra learning now gained through field trials since the draft document was developed and with the knowledge of the new systems now starting to enter the market. The revised document will then be submitted through
the formal TSF approval process to enable a Gas Industry approved specification to be published.

Scope

Task 1: Review and update of the draft PE repair specification

The review and update of the draft PE repair specification will be undertaken based on:
• Incorporation of the comments received through the TSF following submission of the draft document in 2016.

• Consideration of the comments received to date from the GDN's and potential suppliers.
• Consideration of any amendments based on the learning achieved through field trials of existing systems undertaken since the draft document was originally developed.
• Consideration of new repair technology/products to the industry, as well as those currently available.
• Further engagement with the participating GDN Engineering Policy teams and Operational Managers to ensure the suitability and sufficiency of the proposed performance testing requirements.
• Further engagement with the potential suppliers to ensure the practicality of the suggested performance requirements.

New Scope change:
Top tee damage
•Investigate use of V-groove to create leak path through EF zone. Test up to 2 samples
EF coupler
• Investigate use of V-groove to create leak path through EF zone. Test up to 2 samples
Butt fusion standard damage sample
• Use of butt fusion tooling to confirm sample can be set up as defined in the draft specification with 2mm gap
The price includes all directs for additional pipe and fittings

Objective(s)

This project will allow the assessment of potential PE repair systems to be made in conjunction with the performance standard and enable approval for use of the repair techniques for this application. Following formal publication, the specification will provide a recognised route to approval for potential PE repair systems.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

To obtain a revised document that will be submitted through the formal TSF approval process to enable a Gas Industry approved specification to be published.

Project Partners and External Funding

Total project costs: 27,216

Potential for New Learning

This project will allow the assessment of potential PE repair systems to be made in conjunction with the performance standard and enable approval for use of the repair techniques for this application. Following formal publication, the specification will provide a recognised route to approval for potential PE repair systems.

Scale of Project

The results of this project can be shared across all Gas Distribution Networks to maximize the benefits.
Geographical Area

Technology Readiness at Start

TRL5 Pilot Scale

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

The UK mainland.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

Total project cost: 27,216

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 project will offer great financial savings when compared to the current process of temporary repair followed by cut out and replace, these financial savings will be seen in a reduction in labour time, a reduction in reinstatement costs due to small excavations and a reduction in customer disruption due to live repair techniques being developed.

Please provide a calculation of the expected benefits the Solution

In the current state Cadent repairs PE based on a cut out technique which costs £608,256 annually. It is anticipated that the new PE repair techniques will reduce this cost by 25% annually. This cost reduction is based on the assumption that a permanent PE repairs will mitigate the need for big excavations to bypass and replace pipes which will prevent loss of supply for our customers. Smaller and shallower excavations will also reduce reinstatement costs and lead to less traffic disruption.

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

The repair methods will be replicable across all networks which contain a PE assets population, this population is currently increasing and is expected to replace the majority of the network during the GD2.

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

Roll out cost will include cost of updating documentation and policy, as well as sustained embedding of changes within Operations. It is expected that the cost of rolling out the method across all networks will initially be greater, due to new techniques and equipment, however once implemented across the networks these costs will be off set by the financial savings delivered by 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

The results from this project can be shared amongst all GDNs to reduce the costs of repairing PE pipes and ensure that there is one consistent route to asses the suitability of PE repair suppliers.

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

Cadent is looking for methods and techniques to improve the service and mains replacement process, to reduce or minimise disruption to our customers and the general public with materials and techniques that are as practical, safe, and have similar or better longevity properties and are more cost effective.

☑ 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.

This project does not lead to unnecessary duplication as it is directly targeting the test specification of repair techniques for PE materials within Cadent Networks, and these techniques and specifications are not currently available within the gas industry.

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

This project is Innovative (not business as usual) due to the exploration of new tools and techniques for dealing with repairs from PE materials within the networks.

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

The Network Licensee will not fund this project as business as usual due to its innovative exploration of new techniques for dealing with repairs from PE materials.

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

This project can only be undertaken with the support of the NIA as it directly looks to innovatively explore and test new and previously unused tools and techniques for PE repair. The project directly targets specific operational risks linked to PE repairs, which currently in business as usual we cannot target. The project will also benefit all relevant network licensees that have PE population in their networks, and through the NIA learning will be shared amongst these licensees.

This project has been approved by a senior member of staff

☑ Yes