

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

Nov 2016

### Project Reference Number

NIA\_WWU\_034

## Project Registration

### Project Title

Leakage Sealant Standards

### Project Reference Number

NIA\_WWU\_034

### Project Licensee(s)

Wales & West Utilities

### Project Start

November 2016

### Project Duration

1 year and 9 months

### Nominated Project Contact(s)

Matthew Davies – Wales & West Utilities (Lead), Dominic Cummings (Technical) & Ollie Machan – (Innovation) SGN, John Watkins – Cadent, Matthew Sherwood – Northern Gas Networks

### Project Budget

£120,000.00

## Summary

This project will deliver:

1. The review of the efficiency and effectiveness of the current test methods as a demonstration of the effectiveness of the sealant solution.
2. The research and review of alternative test methodologies to demonstrate the effectiveness of sealant solutions
3. Recommendations for the performance requirements for each test method; and
4. The development of one new LC suite GIS (referred to throughout as the "Private Standard") for gas leakage sealants. It will be a performance specification produced as a result of the review, re-categorization and amalgamation of the following six existing LC suite of GISs.

The standards being considered as part of this project are as follows:

- GIS/LC8 Part 1 - Specification for methods of repairing leaking ferrous gas mains. Part 1 - External systems (excluding joint and pipe clamps)
- GIS/LC8 Part 3 - Specification for methods of repairing leaking ferrous gas mains. Part 3 - Internal sealing methods
- GIS/LC9 - Specification for methods of repairing joints on screwed pipework
- GIS/LC12 - Specification For External Sealant Injection Systems For Joint Repair On Ferrous Distribution Mains Systems Operating At Pressures Equal To Or Less Than 2 Bar
- GIS/LC14 - Specification for annular gap sealants
- GIS/LC25 - Specification For External Sealant Injection Systems For Joint Repair On Ferrous Distribution Mains Systems Operating At Pressures Equal To Or Less Than 2 Bar Performance Specification

### Nominated Contact Email Address(es)

innovation@wwutilities.co.uk

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## Problem Being Solved

The Gas Distribution Networks (GDNs) maintain a suite of Gas Industry Standards that specify the requirements of parts or materials that are to be utilised on the gas network. These standards generally specify the testing requirements and associated performance that materials must be subjected and adhere to before they will be approved for use on the network.

One of these suites of standards – Leakage Sealants (see method below for a list of Standards contained within this suite) is in need of significant update as the test methodologies currently detailed within these standards are prohibitively expensive or impossible for manufacturers to comply with. Practically this means that possible new suppliers are restricted from entering the market with new products as they cannot be tested to the appropriate Gas Industry Standard. This also limits potential innovation in developing new products with improved performance over existing solutions. The limiting of new entrants or technologies to the market in this manner also may lead to the cost of the approved sealants being artificially high. The alternative is that GDNs accept uncertified products onto their network; this would present significant risk to the networks that may not be able to subsequently demonstrate the effectiveness of the sealant solutions.

Innovative new test techniques are required that demonstrate a products effectiveness to the satisfaction of GDNs whilst also being cost efficient for the manufacturer This should enable more competition and innovation to enter what is a significantly sized market and should therefore generate savings that could be passed on to the consumer.

## Method(s)

The project will be delivered through the research and development of new or alternative test techniques to be conducted alongside an in depth review of the current suite of leakage sealant (LC) standards with a view to

- apply research to the current suite of standards to acquire new technical knowledge;
- Research and review new, innovative and alternative test methodologies that may be developed or utilised to demonstrate the effectiveness of the sealant solutions
- Draft up new requirements and test methodologies that can be applied to a new combined standard

This will be done with input from and consultation with the relevant stakeholders – to include the GDNs and manufacturers.

## Scope

This project will deliver:

1. The review of the efficiency and effectiveness of the current test methods as a demonstration of the effectiveness of the sealant solution.
2. The research and review of alternative test methodologies to demonstrate the effectiveness of sealant solutions
3. Recommendations for the performance requirements for each test method; and
4. The development of one new LC suite GIS (referred to throughout as the “Private Standard”) for gas leakage sealants. It will be a performance specification produced as a result of the review, re-categorization and amalgamation of the following six existing LC suite of GISs.

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GIS/LC9 - Specification for methods of repairing joints on screwed pipework

GIS/LC12 - Specification For External Sealant Injection Systems For Joint Repair On Ferrous Distribution Mains Systems Operating At Pressures Equal To Or Less Than 2 Bar

GIS/LC14 - Specification for annular gap sealants

GIS/LC25 - Specification For External Sealant Injection Systems For Joint Repair On Ferrous Distribution Mains Systems Operating At Pressures Equal To Or Less Than 2 Bar Performance Specification

## Objective(s)

To develop and deliver a new combined standard utilising new or alternative test methodologies to allow for the cost effective assessment and implementation of leakage sealants across all UK gas distribution networks.

## Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

## Success Criteria

Production of a new Leakage Sealant Standard that has been accepted and approved by both GDNs and manufacturers as being technically acceptable, cost effective and practical to implement.

## Project Partners and External Funding

The project partners are listed below. The project is to be wholly NIA funded

National Grid Gas Distribution Ltd

Northern Gas Networks

SGN

Wales & West Utilities

## Potential for New Learning

The project will deliver the following:

- Research report listing industry stakeholders.
- Report on the review of current and all other relevant sealant test methods with performance criteria and how to best amalgamate the existing six LC suite GISs into one Private Standard performance specification, including a proposed scope and draft outline structure, submitted in Microsoft Word.
- One new LC suite GIS (i.e. Private Standard) to replace the existing six LC suite GISs.

## Scale of Project

This project will review the performance requirements for leakage sealants, the current testing requirements, new alternative and innovative test requirements and then generate a new Gas Industry Standard in collaboration with key Stakeholders to be implemented across the UK.

## 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

None

## Indicative Total NIA Project Expenditure

**National Grid Gas Distribution** - £45,000 external, £15,000 internal

**Northern Gas Networks** - £11,250 external, £3,750 internal

**SGN** - £22,500 external, £7,500 internal

**Wales & West Utilities** - £11,250 external, £3,750 internal

## 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 current Standards include test requirements that are prohibitively expensive to implement. This means that the majority of sealants utilised on the gas networks are through legacy testing and approval. The inability to test to the current standard restricts the testing and implementation of new innovative sealant solutions and also new entrants to the market, therefore reducing competition. A new standard will therefore open up this market and potentially drive down the cost of sealing leaking assets for all GDNs.

#### Please provide a calculation of the expected benefits the Solution

Currently WWU spends approximately £1.2m on leakage sealants and their application per annum, it is expected that a new standard would open up the market for new innovative solutions to be developed and applied, increasing competition in the market and thus driving down costs. The full scale of these saving will only be able to be identified following the implementation of the new standard. However a 1% benefit should be feasible, if realised, and it is assumed that all GDNs utilise leakage products in the same manner as WWU, this could result in savings of over £96,000 / annum (this is calculated by £1.2m x 0.01 x 8 network areas).

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

The project will develop a new Gas Industry Standard that will be applicable and available for implementation by all the GDNs.

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

There will be no direct cost for GDNs associated with rolling out this new standard. The standard will be published on the Energy Networks Association Gas Industry Standards Portal and will be available free of charge to all GDNs and other interested / relevant parties.

### 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

Gas Industry Standards define the requirements of products that may be utilised on the Gas Distribution Networks therefore this new standard will be used by all GDNs and external parties to assess the suitability and effectiveness of leakage sealants.

#### 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.

This is a collaborative piece of work being undertaken by the Technical Standards Forum (TSF) which has representatives from all GDNs. Development of Gas Industry Standards is the responsibility of the TSF and assurance has been gained through internal communication of all the members of TSF and that of the Gas Network Collaboration Forum (GNCF) that no other work of this type is currently being undertaken.

#### 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