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

Mar 2021

Project Reference Number

NIA_NGN_290

Project Registration

Project Title

TEENEE

Project Reference Number

NIA_NGN_290

Project Licensee(s)

Northern Gas Networks

Project Start

March 2021

Project Duration

1 year and 1 month

Nominated Project Contact(s)

Tom McPherson

Project Budget

£186,875.00

Summary

There are no small diameter (≤25mm) PE tapping Tee's available in the market place as the method of renewal has always been to isolate the service and tie in dead (no gas), this means that on every occasion we must interrupt the customer temporarily to work on their service pipe and to do the necessary work. There are now materials available for 32mm services and above, this challenge relates to small diameter gas service pipes.

Third Party Collaborators

Steer Energy

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

It is recognised that COVID-19 has created several new challenges for NGN, SGN and all GDNs in respect of day to day working to ensure our customers, especially the most vulnerable, are kept safe and warm. Current working practices under COVID-19 means that network engineers must avoid any access to customers property, unless deemed essential. In this instance a strict risk assessment protocol must be employed. This has the knock-on implication on all GDNs REPEX functions as there no qualified means to transfer a service without accessing the property and performing the required purge and relight (unless as entering in an emergency).

Post-COVID-19 use

Although initially driven by the challenges faced by the GDNs surrounding COVID-19 and the issues of carrying out service transfers, it is believed that TEENEE has an enduring longevity beyond the current forecast for the global pandemic. Using the TEENEE fitting will enable the small-bore gas service, 25mm and smaller, to be transferred live without relaying to a larger bore.

Method(s)

Stage 1 - Work Package 1
Commercial agreements - Record agreements & responsibilities and to facilitate who is responsible for what
Stage 1 - Work Package 2
Selection of suitable manufacturing partner - Assign suitable manufacturing partner. Since the project relies on a bespoke fitting, a manufacturer needs to be on board.
Stage 1 - Work Package 3
Concept and specification requirement - Design ideas - In order for workshop testing and field trials to commence, without having to go back to the design board
Stage 1 - Work Package 4
Engineering- Initial testing for workshop testing and field trials to commence without having to go back to the design board
Stage 1 - Work Package 5
Reporting and PM - Project structure to make sure the project follows the timeline and meets stage gates

Scope

WP1: IP and Commercial Agreements
Prior to any discussions with Manufacturing Partners, a patent application for the product will be filed as it is seen to have significant novelty and an innovative step. This retains the design intent and control within the GDNs under NIA (noting that the Foreground IP was created by the Live Service Task Force where all GDNs were involved). Securing this will ensure a degree of control within commercial and technical decisions that are required removing some of the commercial drivers of the manufacturer that can impact design.

WP2: Selection of Suitable Manufacturing Partner
A suitable PE manufacturing partner will be required to support the project. It is proposed that this will be chosen through an Urgent RFQ (i.e. turnaround 1-2 weeks) for the development of this work.

WP3: Concept Specification and Refinement
To ensure that the outcomes of this project are well aligned to need, the initial specification will be further developed and agreed with the Innovation, Operations and Policy representatives of the lead GDN. This will form a guide during the ongoing development. The "TEENEE" concept will be developed further and reviewed prior to moving onto the next stage.

Formal Review Hold Point
Assuming the successful appointment of Manufacturing partner and concept refinement development, the project will have passed Stage Gate 1.

WP4: Engineering
Detailed specification and agreed design, Steer Energy will work to develop the concept further, taking advice and support from the selected manufacturing partner. Several machined parts will be made including fusions plates. This will allow operatives to undertake live operations within a training of test setup.
It is possible to include options for an appropriate Technical Services Partner (TSP) to offer the design group advice on the way forward with qualification.

WP5: PM and Reporting
A final design report will be produced to summarise the work undertaken. This will collate the work pack's outcome and provide more detailed discussion on decisions undertaken.

Out of Scope

- To be used on any other low pressure gas service material such as steel
- To be used on anything other than low pressure

Objective(s)

The objective of the project is to deliver:

- Concept and design of fitting
- Detailed concept technical specification
- Manufacture of prototypes and workshop testing

- Lab report of prototypes and tests

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The project will be deemed a success if:

- Technique is suitable for a 1 man operation
- ≤25mm PE suitable pipe diameter
- Compatible for fusion with current apparatus
- Zero leakage - Soundness test during the prototyping stage
- Compliant with current industry standards
- Acceptance from NGN standards team

Project Partners and External Funding

Northern Gas Networks
SGN
Steer Energy

Potential for New Learning

The potential to enable the live transfer of small sized services during network operations, specifically but not exclusively the gas mains replacement activity. Covid-19 restrictions have accelerated the need for these tasks to go ahead remotely away from traditional methods, but this remains an opportunity to explore further what benefits this solution may present for vulnerable customers.

Scale of Project

The scale of the project will consist of the following:

- Design and development of a suitable fusion piece
- Initial testing of fusion piece
- Documentation and report of findings shared to key stakeholders
- A recommendation for a future project moving forward taking TEENEE for TRL 5 to TRL 8

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL5 Pilot Scale

Geographical Area

The project will be undertaken at STEER energy premises and across both NGN and SGN network geographies.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

Northern Gas Networks
External funding = £124,100
Internal cost = £31,025
Total Cost = £155,125

SGN
External cost = £25,400
Internal cost = £6,350
Total Cost = £31,750

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)

A mixture of resource time, cost and materials, along with health and safety, the benefits assumptions have been calculated as being up to a potential saving per operation of £1662.36. Additional benefits are reduced number of excavations in public and private grounds, reduction in noise impact and, currently under this pandemic, an increase to personal safety. As the project starts at a low TRL, the potential CBA will become clearer as the project progresses.

Please provide a calculation of the expected benefits the Solution

We would use the information from above to inform this calculation when known as evidence to confirm benefit assumptions becomes available.

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

This solution would be applicable to all networks as a result of the activity taking place on the gas mains replacement programme and other operational activity. The learnings from this project will be adaptable to all Gas distribution networks.

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

The closure report will enable the cost of rolling out to be identified and circulated out as part of the project closure

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

All networks undertake replacement activity as part of eth enforced gas mains replacement program and would be able to deploy TEENEE to increase safety to customers and engineers.

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

The innovation challenges this project meets are Asset and Network maintenance and Distribution Mains Replacement.

☑ 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.

The project detail has been shared at GIGG and discussed in detail at the cross-network ‘Live Service Transfer’ innovation group meetings with involvement from all GDN’s. A search of the Smarter Networks Portal has also been undertaken to ensure that no projects are in flight or any current solution exists to address the outlined challenge.

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

There is currently no method or solution which deliver the full and permanent live transfer of PE services for these sizes of services that is approved for use on the Gas Distribution 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 project starts at low TRL level and there is a significant degree of innovation risk through the design and development stages to deliver a solution which will meet the projects' objectives. Due to this uncertainty and risk level, it is not a project suitable to be funded by Business as usual allowances.

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

Commercially there are no methods/products available for this particular use. The support of the NIA will enable GDNs to meet technical and operational challenges and operate more efficiently and safely with regards to the gas mains replacement programme and broader operations, and also interactions with customers/stakeholders. Without previous learnings to build on, this causes commercial uncertainties and therefore makes this appropriate to be funded by the NIA mechanism.

This project has been approved by a senior member of staff

☑ Yes