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NIA Project Registration and PEA Document

Date of Submission

Sep 2020

Project Reference Number

NIA_NGN_280

Project Registration

Project Title

Safety & Operational Framework for the Temporary Provision of Alternative Natural Gas Systems 2 (SOFTPANG 2)

Project Reference Number

NIA_NGN_280

Project Licensee(s)

Northern Gas Networks

Project Start

September 2020

Project Duration

0 years and 8 months

Nominated Project Contact(s)

Sam Lynch

Project Budget

£71,475.00

Summary

Following on from original findings in the first SOFTPANG project (which identified the feasibility of a temporary gas solution; it's legal and regulatory restriction, potential advantageous technologies and training requirements to equip this solution) and the current COVID-19 Pandemic, there is an opportunity to use the findings and help mitigate the risk to customers and operational workforce where properties that are identified as 'high risk' as a result of the Covid-19 pandemic and cannot be accessed by network engineers as part of planned operations.

Nominated Contact Email Address(es)

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Problem Being Solved

Following on from original findings in the first SOFTPANG project (which identified the feasibility of a temporary gas solution; it's legal and regulatory restriction, potential advantageous technologies and training requirements to equip this solution) and the current COVID-19 Pandemic, there is an opportunity to use the findings and help mitigate the risk to customers and operational workforce where properties that are identified as 'high risk' as a result of the Covid-19 pandemic and cannot be accessed by network engineers as part of planned operations.

COVID-19 has created an impact on the gas mains replacement programme (Repex) and as a result 'customer impacting' work has either been halted or reprioritised. The original SOFTPANG project was to minimise impacts on the customer and their gas supplies during routine works and potentially emergency work, given the nature of the challenges presented by COVID-19 this now has further benefits associated to the solution originally envisioned in the original project.

Method(s)

In 2018, in partnership with Northern Gas Networks (NORTHERN GAS NETWORKS) and the Energy Innovation Centre (EIC), MMI Engineering (now trading as Thornton Tomasetti) collaboratively delivered the Safety and Operational Framework for the Temporary Provision of Alternative Natural Gas Systems (SOFTPANG) to minimise and/or avoid gas supply interruptions. The project was delivered in three specific phases:

- Stage 1: Review of the legal, commercial, licensing and regulatory requirements related to the temporary interim use of portable natural gas storage
- Stage 2: Identify the range of viable alternate technologies and understand and identify the safety and regulatory risks associated with each of these technology options.
- Stage 3: Develop and produce a framework document defining a suite of requirements / standards, systems and processes, capable of enabling NORTHERN GAS NETWORKS to use new and existing temporary gas supply technologies within its network.

The outcome of the study was an industry approved safety management framework for the provision and use of temporary gas supply systems during interruptions. The guidance included sections on technical quality assurance of any equipment installed or temporarily provided as a part of the temporary supply solution, as well as competence assurance and training of personnel implementing and operating the solutions. The framework also included a decision-making process to aid the GDNs select the best / acceptable option.

The regulatory review, based on the previous Gemserv report, found no main 'showstoppers' to the provision of temporary gas, though derogations from OFGEM would be required in some circumstances. A number of temporary supply technologies were identified, including Compressed Natural Gas (CNG), Liquid Natural Gas (LNG), Biomethane, and Propane/Air supply. The safety, training, installation, regulatory and technology readiness of the various solutions were investigated and outlined in the report.

The project recommended that the next phase of the project would be to select specific technology options and undertake field trials. This phase of the project (SOFTPANG Phase 2) is associated with the progression of the recommendations from the Phase 1 report is to investigate further within Northern Gas Networks to consider the requirements from across the business which will enable a down selection of the technology to be used in a future phase. This phase of the project will select a suitable technology and provide a technical note which will enable Northern Gas Networks to progress to field trials and deployment, which will fall under a follow on project.

Scope

The following can be classified as being within scope for this specific commission:

- Down select specific technology options, considering regulatory and safety changes which may have occurred since the production of the original report through multiple interviews, requirement confirmations from multiple departments within Northern Gas Networks, trial specifications and a final technical note.

Objective(s)

The work will be undertaken in one short stage and the project will focus on the following objectives:

- Down selection to preferred technology/technologies
- Detailed technical note on the requirements to be met to allow field trials of the preferred technology.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The success criteria will include:

- Approval of SOFTPANG Phase II Technical Note by NORTHERN GAS NETWORKS & Trail Specification.

The identification and development of the project success criteria will be developed as part of the initial phase of the project and will incorporate assessment on ability to support a successful contribution to the resuming of the REPEX programme.

Project Partners and External Funding

Thornton Tomasetti
Energy Innovation Centre

Potential for New Learning

This project will generate learning relating to the innovation and development of a solution/blueprint to enable deployment of alternative natural gas to maintain supply to properties.

The project may generate for Northern Gas Networks, access to a system whereby they can maintain gas supply and deliver safety, environmental and cost benefits. This solution will be relevant to all GB GDN's as part of a collaborative exercise to enable national resumption of planned Repex activity.

Scale of Project

The scale of this project will be as follows:

- Creation of a 'blueprint' that is approved for deployment of the final solution
- Production of evidence to confirm that the solution is robust and that all network requirements have been fully achieved with G23 approval being awarded

This has the potential to change the way that distribution works are completed specifically focused around activities where alternative gas supplies would be beneficial. The learning generated from SOFTPANG will ensure that this solution supports the technical engineering and support gas mains replacement activity.

Technology Readiness at Start

TRL6 Large Scale

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

This project will be undertaken in the Northern Gas Networks geographic region with collaborative input from UK GDN's.

Revenue Allowed for the RII Settlement

N/A

Indicative Total NIA Project Expenditure

External funding = £58,008

Internal cost = £13,467

Total Cost = £71,475

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)

It is expected that if successful this project could provide Network Licensees with an opportunity to maintain supply during planned works without having to enter customer premises. This therefore provides safety benefits to operatives and customers during the COVID-19 situation.

Overall this project aims to support customers who may be in shielding, in quarantine/lockdown and those taking precautionary measures but still require critical replacement work on their gas service.

The project will further improve customer experience, through enabling the use of temporary gas supplies (when the distribution network is unavailable). The use of which, is intended to reduce the number of occurrences of planned 'service' interruptions and shorten the interruption time for unplanned works. Additionally, the effects are anticipated to minimize the exposure to gas service interruptions to its vulnerable customers, this can allow routine operations to be undertaken without undue risk being placed upon our operatives and on our customers. This therefore provides safety benefits to operatives and customers during the COVID-19 pandemic and future proofs networks.

Please provide a calculation of the expected benefits the Solution

Analysis indicates that there is a small quantitative cost benefit for this operation however the qualitative benefits are significant.

Whereas the solution will also enable completion of repex activity with significant reduction of risk to network engineers and customers. This also creates a solution to enable progression with the enforced mains replacement programme to remove iron mains from risk, currently suspended.

Any quantitative benefits will be identified to enable capture thought development.

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

The Repex programme and associated service renewals are carried across the all GB networks therefore this project is applicable to all Gas Networks.

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

The implementation cost post-completion of the project will be assessed and will be defined depending on the project outputs. The output of the project is expected to be a high TRL solution which is will be commercially available for all networks to enable completion of repex activity.

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 solution developed by this project is relevant to all networks as it directly relates to the tasks undertaken to enable continued supply to mains and services as part of the gas mains replacement programme.

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 project links directly to the Distribution Mains Replacement, Reliability and Maintenance and overall customer service element of the innovation strategy

- 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.

A review has been made of all the SNP and all other Network Licensees and no other similar projects have been carried out. This project will build from the learning generated as part of the previously completed SOFTPANG project. This project forms part of a wider group of Covid-19 focussed project discussed at regular all-GDN forums.

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

The gas mains replacement programme requires the interruption of supply on every occasion where a customer is directly affected and also access to the property on predominantly every property. The current challenge faced by Covid-19 offers no flexibility meaning we must enter the property, disconnect the customer or not and replace the main without breaching risk assessments or government lockdown/social distancing measures. No solution exists to resolve this matter, and this is significant development and whilst this is a current challenge, at this time it is not yet known how long the impacts of Covid-19 will remain and therefore this innovation is essential to enable the enforced mains replacement programme to resume.

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

No solution exists to resolve this matter, and this is significant development and an uncertain high-risk approach not covered by current regulatory arrangements as part of BAU.

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 presents specific challenges to technical and operational measures and the mechanics of assessing services pipes in a gas free environment without impacting supply are very much uncertain and a risk. The commercial factors surrounding this approach are also uncertain. The solution may prove to be technically feasible but the commercial arrangements to enable deployment must be considered and proven throughout development and demonstration. For these reasons it is appropriate that NIA funding is utilised.

This project has been approved by a senior member of staff

Yes