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 2020

Project Reference Number

NIA_CAD0053

Project Registration

Project Title

ServiBoost Phase 3

Project Reference Number

NIA_CAD0053

Project Licensee(s)

Cadent

Project Start

March 2020

Project Duration

1 year and 1 month

Nominated Project Contact(s)

Cadent Innovation Team

Project Budget

£172,805.00

Summary

Cadent have a license obligation to maintain pressures to the ECV of a property.

Design minimum pressure for low pressure systems shall be no lower than:
-19mbar for systems designed pre January 1996
-20.75 mbar for systems designed post December 1995

Low gas pressures are evident when the gas supply to a customer's property fails to meet the minimum pressure required to keep their appliances functioning correctly. There are numerous causes for low pressure and the impact of low pressures often results in a customer's gas supply being interrupted until a resolution has been identified and resolved.

It is important to minimize the length of an interruption to our customers by identifying a solution that can be installed promptly with minimal disruption and allow the work to resolve the root cause of the poor pressure to be as a planned event rather than unplanned.

Under certain situations, ServiBoost can provide a temporary solution to instantaneous pressure drops and so reduce emergency 'no gas' situations. Cadent estimate that in the last financial year 3,500 recorded instances of poor pressure would present the opportunity to fit a Serviboost unit. This then allows planning and scheduling time to re-configure the service at the customer's convenience.
In order to address these poor pressure problems, Cadent has worked with Synthotech on two previous phases to develop the ServiBoost unit as detailed below :

ServiBoost Phase 1, completed under NIA-NGG0057 (commenced October 2015) successfully delivering:
• Feasibility Study of the proposed system including construction of a simple simulation rig.
• Design, Development and Manufacture of a working prototype
• Testing and data capture of how the booster performs on a simulated rig.

ServiBoost Phase 2, completed under NIA-NGGD-0098 (commenced May 2017), successfully delivering :
• Design and Development of a working prototype (pre-commercialised)
• Manufacture of fully functioning Serviboost units to permit field trials to be undertaken
• Determine Installation challenges
• Undertake trials – Laboratory, Simulated and 'Live' Trials
• Development of data folders to provide a flight plan for commercialisation
• Data collection – Performance, Efficiency, Function of the Installed Serviboost Unit

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

Cadent have a license obligation to maintain pressures to the ECV of a property.

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Method(s)

The project will facilitate the conformance testing of the ServiBoost unit, which are required before the product can be approved for widespread use on the gas network. The tests are required to supplement the technical file and allow the supply of a Declaration of conformance to the relevant regulators.

Scope

Phase 3
The ServiBoost is designed and supplied with a Mertik Maxitrol GT20DIA fire fuse to provide protection and conformance to building regulations. The ServiBoost installation will be tested to prove that the fire fuse functions as stated once installed as part of a ServiBoost installation.
• High temperature testing and reporting

On completion of the project the target Technology Readiness Level (TRL) for the Serviboost Unit is TRL8, defined as 'the system is complete and qualified through test and demonstration'.

Objective(s)

The objectives of this third and final phase of the project are :-

• Build and test the final version of the ServiBoost units
• Complete the ATEX testing and certification of the units
• High temperature testing and reporting

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The project is deemed successful if :

• The requirements of the project objectives are met

• All test phases are passed

The successful completion of all of the test phases will the enable the product to be approved for widespread use on the gas network.

Project Partners and External Funding

This project will be wholly NIA funded

Cadent
Synthotech – Nil external funding

Potential for New Learning

This project will result in new learning that can be applied by all Network Licensees regarding the possibilities of the Servi-Boost device. This new learning will be in the form of an output report which can be shared with all Network Licensees and other interested parties.

Scale of Project

The scale of the project is across all Cadent Networks, and indeed all Gas Distribution Networks, as pressure problems are experienced by all. Within Cadent, in the last financial year, 3,500 recorded instances of poor pressure were experienced where the opportunity to fit a Serviboost unit would have been realised.
There are tangible financial benefits, particularly in terms of capacity savings.

However, there are many other benefits including :
• Overall gas interruption time for the customer is reduced
• The number of customer complaints will be reduced
• Customer Satisfaction scores will improve
• Removes the need for temporary cooking and heating
• Allows planned date agreeable to the customer to be set for remedial works
• Reduces immediate team requests, or in week reactive team requests
• Overall work effort reduces due to planned relay being done efficiently rather than reactively

Technology Readiness at Start

TRL7 Inactive Commissioning

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

The project will be delivered from the supplier offices in Harrogate, and the Cadent offices in Hinckley.

Revenue Allowed for the RIIO Settlement

No Revenue Allowed for in the RIIO Settlement.

Indicative Total NIA Project Expenditure

The project is fully funded by the NIA mechanism :

Total - £172,805

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)

Benefit – potential to save over £900,000 per annum, based on current number of poor pressure jobs. Capacity savings make up a large proportion of this benefit.

Please provide a calculation of the expected benefits the Solution

Cadent assumptions :-
Poor Pressure jobs where opportunity to use Method = 3535 (Poor Pressure data 2018)
Unit cost £1,094.50
Saving per installation - £371.04 (based on reduction in unplanned interruptions, and increase in operational efficiency).

Note :- as the solution is to provide a temporary uplift in pressure, each unit will be used many times.

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

This method could be applied by all Network Licensees if successful; it could be used wherever low pressures exist in isolated situations of poor pressure as a result of historic service construction.

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

Roll out costs will consist of equipment hire or purchase, training costs, maintenance costs and costs associated to change of documentation and policies.

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

Learning generated will be in the form of an output report, which will articulate the success of the project. This output report can be freely shared for use by all relevant Network Licensees for their perusal. This solution could be adopted and implemented by all GDNs where pressure problems is an issue.

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

Not applicable

☑ 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

This project is innovative as the solution is not currently in use within the Gas Network.

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

As this project is innovative, and there are a number of test phases still to be successfully completed, Cadent would not consider this part of business as usual.

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

Due to the project still requiring to prove that the units comply with building regulations, and can pass the relevant tests as highlighted in the scope and objectives, then NIA funding is appropriate to help move this forward. This will alleviate any commercial risks to Cadent

This project has been approved by a senior member of staff

☑ Yes