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

Feb 2015

Project Reference Number

NIA_WWU_020

Project Registration

Project Title

Smarter Network Control

Project Reference Number

NIA_WWU_020

Project Licensee(s)

Wales & West Utilities

Project Start

February 2015

Project Duration

0 years and 10 months

Nominated Project Contact(s)

Steve Hiscocks (stephen.hiscocks@wwutilities.co.uk),
Martyn Pallant (martyn.pallant@wwutilities.co.uk)

Project Budget

£13,667.00

Summary

The first project phase will undertake a workshop based trial of proposed hardware and software alongside current hardware and software to compare performance. If Phase 1 proves successful, a trial will be undertaken on a live network configuration to prove actual deployment into the field.

Finally, the performance of the hardware and software against currently deployed systems in terms of reliability and performance improvement potential will be reviewed and a final report will be written.

Nominated Contact Email Address(es)

innovation@wwutilities.co.uk

Problem Being Solved

Historically Gas Distribution Networks have operated some of their below 7 Bar pressure reduction sites (District Governors) on a traditional summer or winter setting. In recent year the networks have introduced an 'open loop' system to control supply pressures in approximately 500 Low Pressure networks. This control system is extremely manually intensive with Operatives across the network interfacing on a daily basis to ensure we minimize any unrequired increases in system pressures. Additionally, the associated cost of replacement parts is escalating.

Method(s)

This project is to research whether or not a suitable alternative is available within Europe that can match or enhance the functionality of the currently installed equipment. This project looks for a technical solution and will develop and demonstrate the equipment's suitability to measure the input, output pressures and flow.
The system will require relatively straight-forward installation which can be performed by WWU operatives and has the ability to be retro-fitted so that it can be plugged into and work on our existing equipment (SCADA and PMAC)

We have identified a potential solution with an Italian company named Pietro Fiorentini.

Scope

The first project phase will undertake a workshop based trial of proposed hardware and software alongside current hardware and software to compare performance.
If Phase 1 proves successful, a trial will be undertaken on a live network configuration to prove actual deployment into the field.

Finally, the performance of the hardware and software against currently deployed systems in terms of reliability and performance improvement potential will be reviewed and a final report will be written.

Objective(s)

To identify where alternative hardware and software maybe available to WWU for deployment in the field to monitor, manage and potentially improve system pressures to minimise emissions associated with the operation of pressure regulating equipment and downstream supply pressures. Additionally, the ability to undertake remote diagnostics and maintenance will be trialled.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

WWU will measure the success of the project against the following points

- Hardware and software installation at a controlled location (Treforest) for initial monitoring
- Evaluation of the potential benefits of the new system against existing systems
- Identifying any performance improvements in network average system pressure.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

This is a small scale trial which will take place in a workshop environment for proof of concept and then if anticipated performance is proven a trial will be undertaken on a single site within the live distribution network on the low pressure network.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL6 Large Scale

Geographical Area

South Wales: Workshop based feasibility followed by deployment on a Low pressure <1000 customer distribution network installation.

Revenue Allowed for the RIIO Settlement

Based on the fact that we propose a small scale trial of the technology we do not envisage an impact to allowed revenue.

Indicative Total NIA Project Expenditure

External project cost £10,250

Max internal cost £3,417

Total NIA cost £13,667

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 assumed that there could be additional environmental benefits and a reduction in WWU's carbon footprint if this equipment was proved and installed upon the WWU distribution network.

Please provide a calculation of the expected benefits the Solution

In principle this is a research project. Any financial benefits would be in association with our reduction in emissions if this equipment was installed upon our distribution network.

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

If the principle is proven then there is no foreseeable reason that this equipment could not be rolled out to the entire distribution network within the UK. Predominantly the equipment currently in place does not vary in build or manufacture across the UK.

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

It is not yet possible to determine the levels of costs associated with roll out of this technology. This project will however give us an understanding of the costs associated with the purchase of necessary equipment to measure input, output and flow and control of a 280 regulator that can be used to understand future costs.

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

This demonstration project will allow other GDN's to undertake a review of the equipment identified from Italy to provide a solution to address the problem identified. It will allow them to determine whether this technology could provide benefits that outweigh the costs and practices associated with the current methods which may provide scaled up benefits to the customer.

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

We are committed to providing a reliable gas supply for our customers whilst protecting and helping the environment for today and for the future. This demonstration project will demonstrate that new equipment can be utilised on the existing equipment and may provide importance for future bio methane connections and their monitoring.

☑ 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

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

- [x] Yes