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

May 2012

Project Reference Number

ENWT1003

Project Registration

Project Title

Low Voltage Network Solutions

Project Reference Number

ENWT1003

Project Licensee(s)

Electricity North West

Project Start

April 2011

Project Duration

3 years and 0 months

Nominated Project Contact(s)

Electricity North West Innovation Team

Project Budget

£490,000.00

Summary

The decarbonisation of transport, heating and electricity generation suggest changes in the network requirements of Low Voltage (LV) connected customers. These will introduce significant challenges for the networks from higher and more variable loading.

The generic problems associated with changes in demand and generation on the future LV network are well known. What is not clear is when the problems arise, and how DNOs will address these problems in an economic and sustainable way. The potential solutions are expected to comprise new technologies and operating techniques.

In order to begin to understand what these changes will mean to networks, network operators will need to measure the existing demand and voltage characteristics of networks at an increasingly granular level, and to develop models which enable them to forecast the effects of future scenarios for the penetration of customers low-carbon technologies. At present, analogue data such as voltage and current is not routinely captured beyond the primary substation level. However, it is expected that as demands increase, it will be the low voltage networks that will experience both thermal and voltage problems ahead of the higher voltage networks. Given this, it is paramount that network operators quickly begin to fill the gaps in their understanding of the characteristics of low voltage networks and assets.

Nominated Contact Email Address(es)

innovation@enwl.co.uk

Problem Being Solved

Method(s)

Scope

Objective(s)

This project will deploy a range of distributed measurement, sensing and analogue recording instrumentation, which will provide Electricity North West Ltd with greater understanding of the existing operating characteristics and demands of its LV networks and the tools to manage these issues.

Electricity North West Ltd will identify a statistically meaningful sample of representative LV network feeders from its total population of over 120,000 feeders, and use these to map the characteristics of the total population. Electricity North West Ltd will use the data to develop planning and modelling tools and techniques, which will be essential to allow DNOs to manage these complex networks more appropriately in the future. The Project will allow Electricity North West Ltd to use and validate the results of WPDs Tier 2 LCNF Low Voltage Template project, for application on Electricity North West Ltd's network.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

n/a

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

n/a

Geographical Area

Revenue Allowed for the RIIO Settlement

Indicative Total NIA Project Expenditure

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)

n/a

Please provide a calculation of the expected benefits the Solution

n/a

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

n/a

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

n/a

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

n/a

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

Please demonstrate how the learning from the project can be successfully disseminated to Network Licensees and other interested parties.

Please describe how many potential constraints or costs caused, or resulting from the imposed IPR arrangements.<

Please justify why the proposed IPR arrangements provide value for money for customers.

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

☑ Yes