

NIA Project Registration and PEA Document

Date of Submission

May 2012

Project Reference Number

ENWT1001

Project Registration

Project Title

The Bidoyng Smart Fuse

Project Reference Number

ENWT1001

Project Licensee(s)

Electricity North West

Project Start

January 2012

Project Duration

3 years and 0 months

Nominated Project Contact(s)

Electricity North West Innovation Team

Project Budget

£442,666.00

Summary

In recognition of the number of transient faults being experienced on Low Voltage (LV) distribution networks and the constant drive to improve customer service, Electricity North West Ltd and its partners initiated the Innovation Funding Incentive funded fuse restorer project in 2006. The aim of the project was to develop a device capable of carrying two LV fuses in a standard size fuse carrier that could automatically insert a secondary fuse into a circuit, following a transient fault to restore supplies to customers and then send an alarm notification to a nominated contact.

Electricity North West Ltd's partners delivered the final device, now known as the 'Bidoyng smart fuse.' Three were installed on Electricity North West Ltd's network in Wigan, Lancashire, where they successfully operated to restore supplies to over 100 connected customers following a transient fault.

The smart fuse has been fully type tested (up to 50kA) and now provides a potential means to eliminate a significant proportion of transient faults based on developing a targeted installation strategy. During the development of the smart fuse, the debate on smart grids has developed significantly with the recognition that the LV network will become ever more important as domestic scale renewable energy generation is expected to play an ever greater part in the transition to a low carbon economy.

Nominated Contact Email Address(es)

innovation@enwl.co.uk

Problem Being Solved

Method(s)

Scope

Objective(s)

The aim of the project is to install 200 smart fuse units and gateways in identified LV circuits. The smart fuse units are retrofitted to the LV fuse position in the LV fuse pillar with 3 smart fuse units installed per feeder (one on each phase). 200 units will provide coverage for 66 feeders and one gateway is needed in each substation that smart fuses are installed.

The objective is to demonstrate the advantages of being able to automatically restore supplies to LV connected customers and to gather data about the performance such a device will deliver to the network. It is envisaged that other smart grid opportunities will arise once data has been gathered and evaluated.

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 RII0-1 and RII0-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RII0-2 / RII0-1).

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 RII0-2 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 (RII0-1 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 RII0-1 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

RII0-2 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