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

Dec 2013

Project Reference Number

ENWT205

Project Registration

Project Title

Smart Street (eta)

Project Reference Number

ENWT205

Project Licensee(s)

Electricity North West

Project Start

January 2014

Project Duration

4 years and 0 months

Nominated Project Contact(s)

Electricity North West Innovation Team

Project Budget

£11,476,000.00

Summary

eta will demonstrate a step change in the co-ordination and integrated operation of distribution networks in Great Britain. Utilising the most advanced technology developed today for LV network management, eta challenges the current operational practices and demonstrates how to optimise HV and LV networks in real time. eta marks the coming together of several technologies developed under IFI and First Tier Low Carbon Networks funding which will transform the operation of networks making them truly responsive to customers' needs. Enhancing existing networks in this way enables accelerated connection of clusters of Low Carbon Technologies that contribute to emissions reduction targets. eta is a low risk, transferrable, non intrusive method which is an alternative first intervention to traditional network reinforcement. The eta Method releases capacity up to four times faster and is 40% cheaper than traditional reinforcement techniques for Low Carbon Technology clusters. eta's Optimisation software delivers Conservation Voltage Reduction to improve the energy efficiency of customers' electrical appliances reducing energy up to 3.5% per annum, and lowering network losses by up to 2% per annum across HV and LV networks; delivering recurring financial savings for customers, without degradation to the quality of customers' supply. In eta we will survey customers recruited from within the Trial areas to prove this.

The eta Solution is transferable to 64% of the Electricity North West and 72% of GB networks releasing capacity up to 2 985MW for Electricity North West and 39 630MW for GB; and is less carbon intensive than traditional approaches delivering an asset carbon saving of up to 93%.

Through eta, the delivery of electricity will become more efficient, flexible, with a real focus on minimising carbon impact whilst enhancing supply resilience for customers as they will become increasingly dependent on electricity as their primary source of energy.

Nominated Contact Email Address(es)

innovation@enwl.co.uk

Problem Being Solved

Method(s)

Scope

Objective(s)

The UK's decarbonisation journey through to 2050 will see a reduction in the carbon footprint of heat, transport and electricity generation. Current DECC forecasts suggest that there may be up to a 60% increase in total electricity demand, mostly between 2030 and 2050 and the amount of small scale embedded generation such as photovoltaic (PV) panels on domestic premises is set to increase from 26.5MW in 2015 to 18 700MW by 20401. The substantial increase in new electricity loads from Low Carbon Technologies (LCT) such as heat pumps for heating and electric vehicles for transport coupled with the new generation will create thermal and voltage challenges for the management of high voltage (HV) and low voltage (LV) networks. Distribution network operators (DNO) must connect the new LCTs to facilitate customers' transition to a low carbon future, whilst maintaining statutory voltages, reducing network losses, managing power quality and, against a backdrop of increasing energy bills, help reduce costs to customers. DNOs would have historically employed traditional reinforcement to address the problems created by new LCTs, this option is no longer appropriate due to the high cost and associated disruption.

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