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

SSET1002

Project Registration

Project Title

Demonstrating the Benefits of Monitoring Low Voltage Network with Embedded PV Panels and EV Charging Point

Project Reference Number

SSET1002

Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

Project Start

September 2010

Project Duration

1 year and 2 months

Nominated Project Contact(s)

SSEN Future Networks Team

Project Budget

£320,000.00

Summary

This project will introduce 11kV Low Voltage (LV) substation monitoring, to obtain directional energy usage data over a period of 12 months.

SE has funded a development of ten zero carbon homes at Slough. Each property has Photovoltaic (PV) tiles installed with 63kW output in total. An all-electric Ford car will also be shared between residents. Domestic monitoring devices have been installed to monitor the energy performance of the homes for 24 months. The findings will contribute to studies being carried out by University of Reading, NHBC (National House-Building Council) and BRE (Building Research Establishment).

This Tier 1 project will introduce 11kV LV substation monitoring to obtain directional energy usage data over a period of 12 months. The substation monitoring will make use of air-gap Current Transformers (CTs), intended for retro-fit involving no (or low) CML impact. These CT sensors have not previously been deployed in GB but the technology has been deployed in North America.

The trial is limited to the two feeders at a 11kV/ LV substation in Chalvey. This will enable comparison between the feeders with and without the PV and EV charging connection.

The project duration has been chosen to allow time for installation, commissioning, data monitoring, collection and analysis.

Nominated Contact Email Address(es)

fnp.pmo@sse.com

Problem Being Solved

Method(s)

Scope

Objective(s)

This project aims to demonstrate the installation of cost-effective 11kV LV substation monitoring devices with zero / low CML losses. The technology and methodology of installation is expected to be applicable to most GB DNO secondary substations. The insight gained from this project on LV network performance, with or without PV and EV charging connection, is expected to lead to improved usage of the distribution system, facilitating the connection of PV and EVs and bringing benefits for the planning of future low carbon network.

Project objectives are as follows:

- Demonstrate a no (or low) Customer Minutes Lost (CML) retro-fit 11kV LV substation monitoring solution
- Analyse the data on LV feeders to understand the performance of the LV network
- Assess the impact of PV system and Electric Vehicle (EV) charging behaviour on the network
- Identify the additional capacity of connecting PV panels and EV charging points on the LV feeder
- Assessment of multiple monitoring products
- Develop modes of operation for the transmission of data to suit a control room requirement

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