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

Jan 2013

Project Reference Number

SSET1008

Project Registration

Project Title

Low Voltage (LV) Network Connected Energy Storage

Project Reference Number

SSET1008

Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

Project Start

January 2012

Project Duration

2 years and 3 months

Nominated Project Contact(s)

SSEN Future Networks Team

Project Budget

£310,000.00

Summary

Southern Electric Power Distribution seek to understand the potential benefits, practicalities and costs of installing Electrical Energy Storage (ESS) connected via 4 quadrant Power Conversion Systems (PCS) on the Low Voltage (LV) network. The main objective is to inform and de-risk the larger scale deployment of street batteries as detailed in the New Thames Valley Vision Tier 2 project.

The ESS units with associated PCS have the potential to aid power quality, to manage reactive power flows and to reduce the peak demand / peak generation real power flows, through peak lopping. This has the potential to delay or reduce the need for traditional network reinforcement, thereby preventing the local DNO network from becoming a barrier to the deployment of low carbon technologies. In order to understand the operation of an ESS with relevant low carbon technologies such as solar PV and Electric Vehicles (EVs), Southern Electric Power Distribution has identified a site with established solar generation and electric vehicle charging points. Southern Electric Power Distribution is proposing to install 3 single phase 25 kW / 25 kWh lithium-ion batteries at this strategic location on the LV network.

Nominated Contact Email Address(es)

fnp.pmo@sse.com

Problem Being Solved

Method(s)

Scope

Objective(s)

Southern Electric Power Distribution will monitor, model and analyse the operation of the ESS to understand the technical solutions that this technology can provide to the low voltage network. Shadow cable limits will be applied and will not pose any risk to the security of supply. The data and learning obtained will feed directly into the Tier 2 project to support the large rollout of this technology.

In addition the following objectives have been established:

- Prove the batteries and power conversion units can operate as intended on an LV network in GB and have a tangible benefit electrically
- Inform the establishment of the economic threshold for this technology
- Validate the technical specification to inform and de-risk the tendering exercise for the Tier 2 project
- Define, test and prove the communications and the associated data transfer requirements for this small trial and inform that required for a larger array
- Inform the safety case and the operational procedures including installation, maintenance and operational work on a network with storage connected (faults, protection. live working, safety procedures etc)
- Inform decisions regarding the physical location of storage devices given public perception and acceptance.

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