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

Project Registration

Project Title

Low Voltage Network Templates

Project Reference Number

Project Licensee(s)

National Grid Electricity Distribution

Project Start

April 2011

Project Duration

2 years and 4 months

Nominated Project Contact(s)

WPD Future Networks Team (01332 827446)

Project Budget

£9,017,250.00

Summary

The UK Low Carbon Transition Plan highlights the importance of a transition to a low carbon economy. In order to meet emissions targets, over 40% of electricity must come from low carbon sources by 2020. The electricity network as it stands today is well suited to centralised, high-carbon generation, such as fossil fuel power stations. However, to meet carbon targets, low-carbon generation must be brought online, but this type of generation brings challenges to the network. Low-carbon energy, such as wind, solar and wave renewables, and energy conservation measures, such as external wall insulation, bring different and varying stresses and benefits to the network as compared to traditional generation. In addition, we have little information about how these stresses actually affect the network.

The part of the network that will be most affected by these necessary changes is the Low Voltage (LV) network that supplies homes and businesses. To complicate matters, the LV network is also the part of the network which there is the least information about, or knowledge of the 'headroom' available to accommodate a low carbon future. We do not accurately understand the impact of low-carbon initiatives on the LV network, and have little insight into the supply performance of the LV network against the European power quality standard EN50160. Therefore, there is not a clear picture of how best to design or manage the network to meet these challenges. Nor can NG be informed of how much LV microgeneration is running in GB. Having knowledge of this microgeneration would optimise the UK's spinning reserve.

Problem Being Solved

Method(s)

Scope

Objective(s)

The project aims to give Western Power Distribution:

- A view of the power flows and voltages of the LV network in South Wales, together with visibility of impacts arising from Welsh Assembly Government low-carbon initiatives covering some 3,000 homes, and including 1,000 PVs installations

- A comparison of non-stressed and stressed network locations, and thereby measure the impact of these low-carbon stresses

- Present National Grid with the ‘hidden’ generation available in the monitored areas, which will provide the ability to contribute to network efficiency and reduce the need for high-carbon spinning reserve generation

- Store project data, Western Power Distribution's partners will create a number of reusable network templates, based on the ENA’s templates, composed of varying characteristics about the nature of the network. Ultimately, with the aid of these templates, DNOs across the country will understand, the characteristics of the network and its varying capabilities to absorb low-carbon stresses and changes in demand, and thus, eventually, streamline the connection of low-carbon generation

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