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

ENWLT203

Project Registration

Project Title

Capacity to Customers

Project Reference Number

ENWLT203

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

£9,597,000.00

Summary

Capacity to Customers (C2C) engages customers in an innovative form of demand/ generation side response that accommodates much higher demands on existing electricity networks without the need for reinforcement. Customers are at the heart of C2C and it seeks to prove that the innovative application of existing technology together with new commercial offerings can be combined to meet customers' future low carbon needs at much lower cost. C2C's technical elements leverage techniques developed for customer service improvements to offer significantly higher capacity to customers. C2C will be piloted on High Voltage (HV) networks supplying 12% of our customers allowing them secure access to the networks' previously unavailable latent capacity.

As GB fulfils its decarbonisation obligations under the Climate Change Act 2008, to cut greenhouse gasemissions by 80% by 2050, the demand on electricity networks will dramatically increase. Various reports forecast overall electricity demand to grow by 1.2% per annum to 600TWh/year by 2050, an approximate 100% increase from current levels. This increase in network demand will be driven primarily through the decarbonisation of heat, transportation and electricity production rather than by a growing population.The Problem has two direct consequences which will need to be resolved in order to move the UK towards a decarbonised economy:

- High costs to customers
- Significant environmental & societal impacts.

The techniques that traditional reinforcement use are also very intrusive for local communities and can often involve extensive excavations and disruption. Average reinforcement timescales are in the region of 12-16 weeks for work involving cable upgrades or switchgear and much longer when involving new transformers or more complicated work.

Nominated Contact Email Address(es)

innovation@enwl.co.uk

Problem Being Solved

Method(s)

Scope

Objective(s)

The key objectives of the C2C project are as follows:

- Adaptive network control functionality: The trial will develop advanced network control functionality that will through productisation be available to all GB DNOs

- Demand response commercial templates: The trial will produce a series of model commercial contracts that can be used by all DNOs to extend the C2C Method and its benefits to all DNO customers

- Customer segmentation template: The trial will produce a customer segmentation template, describing how a DNO's customer base can be segmented and hence better approached for the introduction of demand response contracts

- New connections process: The trial will produce a new connections process detailing those technical and commercial steps required to extend the benefits to future C2C customers

- Overall customer feedback: This includes feedback from customers participating in the C2C Project including; comments on connections process, the form of response and feedback from customer engagement on planned interruptions and unplanned interruptions

- Network data: Detailed analysis of the benefits of the C2C Method on network losses and power quality in the form of a full set of network performance data

- Modelling/Simulation outcomes: The simulations will provide a detailed technical and economic assessment of the benefits of the C2C Solution

- New design and planning standard: The Method represents a fundamental change in the evolution of grids from passive to active operation and Electricity North West Ltd in conjunction with Parsons Brinckerhoff Power will produce proposals regarding new operating and design standards to inform the amendment or replacement of Engineering Recommendation P2/6.

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