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

Mar 2015

Project Reference Number

NIA_NGGD0052

Project Registration

Project Title

Demand Allocation Phase 2

Project Reference Number

NIA_NGGD0052

Project Licensee(s)

Cadent

Project Start

February 2015

Project Duration

0 years and 10 months

Nominated Project Contact(s)

Philip Halsey – Project Manager National Grid, Marcus Sharpe – Technical lead National Grid, Joanna Kingdon – Project Manager DNV GL

Project Budget

£340,733.00

Summary

The scope of this project is to further develop the working prototypes developed under IL218 to improve their accuracy and efficiency, including demonstration that the algorithms are robust and fit for purpose

IL218 delivered working prototypes with significant improvements in the spatial allocation element for demand. Phase 2 will carry on this work with a continued focus in each area as described below in the objectives and by further exploring the reclassification of demand. This element requires additional data to research and refine the outputs more accurately.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

National Grid Gas Distribution plans it's below 7 bar networks in accordance with industry guidance document IGE/GL/1.

The Graphics Based Network Analysis (GBNA) and Demand Derivation System (DDS) are the primary systems utilized in the Network Analysis element of the overall planning process.

Key inputs to the GBNA and DDS systems are customer Meter Point Reference Number (MPRN) data, Standard Industrial Classification (SIC) codes and the network location of the demand – node.

Current processes to maintain and manage this data are labour intensive and require significant training with the inherent risk of inconsistency of application which has the potential for security of supply and financial impacts.

This project therefore seeks to develop a more robust, transparent and repeatable method of classifying and allocating the demand

within the network model.

Method(s)

This project seeks to develop work carried out under a previous Innovation Funding Incentive (IFI) project, through the innovative use of a combination of socio-economic, Ordnance Survey and customer demand data to better classify and allocate the demand within the network model.

Scope

The scope of this project is to further develop the working prototypes developed under IL218 to improve their accuracy and efficiency, including demonstration that the algorithms are robust and fit for purpose

IL218 delivered working prototypes with significant improvements in the spatial allocation element for demand. Phase 2 will carry on this work with a continued focus in each area as described below in the objectives and by further exploring the reclassification of demand. This element requires additional data to research and refine the outputs more accurately.

Objective(s)

The aim of this project is to further develop a tested prototype database and application to undertake data conflation, demand classification and spatial allocation, of the demand within some sampled network analysis models, produce example results and build on the next steps necessary to implement the system as business as usual.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Success of this project will be the development of a new prototype database, application and process that is proven to be consistent and developed around a methodology that is readily applicable to network models and has a positive effect in reducing any security of supply risk and also reduces the level of intervention required.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

The scale of this project includes performance on multiple National Grid network analysis models, followed by a working prototype which can be applied to any National Grid network analysis model. As a minimum we will look to trial 25 sample networks.

Technology Readiness at Start

TRL6 Large Scale

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

DNV GL Offices Loughborough

National Grid Offices, Brick Kiln Street Hinckley

Revenue Allowed for the RIIO Settlement

No Revenue Allowed for in the RIIO Settlement.

Indicative Total NIA Project Expenditure

£340,732.70 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)

NGG have contractual and safety case imperatives that require fit for purpose network analysis models for use in the design process. This project will contribute towards the removal or reduction of the risk that the current method of classifying customers into appropriate demand categories and the spatial allocation of the demands to appropriate network model node numbers could be inconsistently applied. Inconsistent application of demands to nodes could result in over or under design and hence under or over cost allocation or recovery on Repex, Opex, Capex and Connections Quotations with an inherent risk to security of supply. There is also a safety case commitment to provide a fit for purpose network analysis capability 24x7 to the operational processes.

In addition it is noted that this solution will facilitate smart and swift checks to full networks with regard to the classification and location of each demand within that Network. Currently this kind of data validation typically only occurs when issues are discovered and is usually localised within the particular Network. This approach will ensure current resources are used more effectively and efficiently.

Please provide a calculation of the expected benefits the Solution

It is not possible to quantify that effect at this point within the project. An estimate can be produced as the project progresses. (Project Benefit Score = 9/25)

Please provide an estimate of how replicable the Method is across GB

This Method could be applied by all Network Licensees if successful, in order to more accurately model network demand.

Please provide an outline of the costs of rolling out the Method across GB.

The database and application could be integrated into our current demand database and will be reviewed once the project has been completed. We will also look into integrating the results in a new demand system which could be in place in the future, as we are always reviewing new systems. National Grid proposes to explore the integration as a project outcome into a new Demand System. Once this exercise has been completed it will be possible to assess the cost of rolling out across GB. Estimates for the cost of this implementation are unable to be provided as an output of this project.

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

All Network Licensees have a requirement to model their networks using network analysis and an associated need to model network demand. The new tool could therefore readily be applied by other Licensees.

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RIIO-1 only)

Not applicable.

☑ Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

Is the default IPR position being applied?

☑ Yes

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