

NIA Project Registration and PEA Document

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.

Project Registration

Project Title		Project Reference
Detection and prevention of formation of Islands via SCADA.		NIA_ENWL013
Project Licensee(s)	Project Start Date	Project Duration
Electricity North West Limited	Jan 2016	2 Years 6 Months
Nominated Project Contact(s)		Project Budget
Geraldine Bryson (geraldine.bryson@enwl.co.uk)		£200,000

Problem(s)

The amount of generation connected to distribution networks at all voltage levels has steadily increased in recent years which has led to parts of the network where generation matches or exceeds demand at certain points on the load curve. The requirements for grid connection of generators detailed in the European Network Code are currently undergoing modification which will allow the dynamic behaviour of generators and their protection and control facilities to change under certain fault conditions in order to preserve or to re-establish system security.

In addition to the EU Network Code changes there are proposed changes to the GB Distribution Code to alter the Rate of Change of Frequency (RoCoF) settings for generators from 0.125Hz/s to 1Hz/s. These wider settings help to stabilise the system from a national perspective.

The emergence of commercial measures such as Demand Side Response (DSR) contracts used to balance system frequency, trading positions and network constraints have also increased in recent years. These contracts can result in some quite significant changes to the demand profile of the distribution network.

The combination of altering settings or control on generators to allow them to remain connected for smaller system disturbances and the increase in demand and associated DSR will potentially lead to an increase in the risk of a generator supporting an islanded network on the local distribution system.

The problem is how to reliably and economically detect when an island has formed and to determine what steps are then appropriate to take once an island has been detected.

Method(s)

The project will investigate the use of SCADA and ADMS functionality to detect and then fragment islands formed on the distribution network. If the investigation proves successful a formal DCode modification could be prepared.

Scope

The project is a proof of concept examination into the use of SCADA and ADMS as a solution to overcome the issue of island formation as a result of wider RoCoF settings.

Objective(s)

To produce a proof of concept paper and associated functional specification on the use of SCADA and ADMS to detect and fragment islands formed on the distribution network.

Success Criteria

This project will be considered a success upon production and publication of a proof of concept paper and associated functional specification on the use of SCADA and ADMS to detect and fragment islands formed on the distribution network. It is proposed that the outcomes of the project will be shared with industry experts and comments invited.

Technology Readiness Level at Start

2

Technology Readiness Level at Completion

4

Project Partners and External Funding**Potential for New Learning**

The project will provide an alternative method to RoCoF to detect and remove islands forming on the distribution network.

Scale of Project

The project can be applied to all areas of the Electricity North West network which is represented on the Network Management System.

Geographical Area

North West of England

Revenue Allowed for in the RIIO Settlement

None

Indicative Total NIA Project Expenditure

200000

Project Eligibility Assessment

Specific Requirements 1

1a. A 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 systems and 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

Specific Requirements 2

2a. Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

Please answer one of the following:

i) Please explain how the learning that will be generated could be used by relevant Network Licenses.

The project will provide a functional specification for using SCADA and ADMS to detect and fragment islands. This specification can be used by other Network Operators to apply to their own systems.

ii) Please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the Project.

2b. Is the default IPR position being applied?

Yes

No

If no, please answer i, ii, iii before continuing:

i) Demonstrate how the learning from the Project can be successfully disseminated to Network Licensees and other interested parties

ii) Describe any potential constraints or costs caused or resulting from, the imposed IPR arrangements

iii) Justify why the proposed IPR arrangements provide value for money for customers

2c. Has the Potential to Deliver Net Financial Benefits to Customers

i) Please provide an estimate of the saving if the Problem is solved.

As this is a proof of concept research project it is not possible to estimate savings at this point.

ii) Please provide a calculation of the expected financial benefits of a Development or Demonstration Project (not required for Research Projects). (Base Cost – Method Cost, Against Agreed Baseline).

Not required as this is a research project

iii) Please provide an estimate of how replicable the Method is across GB in terms of the number of sites, the sort of site the Method could be applied to, or the percentage of the Network Licensees system where it could be rolled-out.

The functional specification will allow the concept to be applied to any Network Management System therefore it is replicable across all Distribution Network Licensees.

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

There is no rollout cost. The methodologies will be made available to all DNOs.

2d. Does Not Lead to Unnecessary Duplication



i) Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

A review of the smarter networks portal has not revealed any projects in this area.

ii) If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.