

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

Nov 2016

### Project Reference Number

NIA\_NGET0200

## Project Registration

### Project Title

Study into the Concept of High Impact, Low Probability Events

### Project Reference Number

NIA\_NGET0200

### Project Licensee(s)

National Grid Electricity Transmission

### Project Start

November 2016

### Project Duration

0 years and 5 months

### Nominated Project Contact(s)

Greg Farrell

### Project Budget

£100,000.00

## Summary

The scope is to deliver a detailed report that can be used to better define the effect of High Impact, Low Probability events affecting the assets on the Great Britain Electricity Transmission System.

### Nominated Contact Email Address(es)

box.NG.ETInnovation@nationalgrid.com

## Problem Being Solved

Currently, the concept of High Impact, Low Probability (HILP) (whilst understood as an abstract concept), is not clearly defined in terms of its incorporation into Asset Management tools for use within the utilities industry. HILP is much better understood in terms of how it related to other industries, such as the nuclear industry.

There are few examples of how HILP events impact on infrastructure, with possible examples being hurricane Katrina in the United States of America, and closer to the United Kingdom, the large scale outages in Italy and Sweden. A clear understanding about how HILP should be defined and treated is required to help the Transmission Owners undertake world class asset management, and to mitigate HILP risks impact on the public. This is a critical element to the Network Output Measures methodology, and will be used by Scottish Power Transmission and Scottish Hydro Electric Transmission.

## Method(s)

Desk top to define High Impact, Low Probability events, the assets which need to be considered and how these assets should be treated.

## Scope

The scope is to deliver a detailed report that can be used to better define the effect of High Impact, Low Probability events affecting the

assets on the Great Britain Electricity Transmission System.

### **Objective(s)**

The objective of this project is to build on the expertise and research that already exists for other sectors within the United Kingdom and contextualise this work in order to define how this could effect the Great Britain Electricity Transmission System.

### **Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)**

n/a

### **Success Criteria**

This project will be deemed successful on the completion, and publication of the report into High Impact, Low Probability events and the effect on the Great Britain Electricity Transmission System.

### **Project Partners and External Funding**

n/a

### **Potential for New Learning**

n/a

### **Scale of Project**

This desk top study will look to draw on previous studies and expertise of High Impact, Low Probabiltiy events in other sectors (eg. nuclear) and define what this means to the Great Britain Electricity Transmission System.

### **Technology Readiness at Start**

TRL2 Invention and Research

### **Technology Readiness at End**

TRL3 Proof of Concept

### **Geographical Area**

Desk based study.

### **Revenue Allowed for the RIIO Settlement**

None

### **Indicative Total NIA Project Expenditure**

£100,000

## 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)

This piece of work has the potential to save the organisation the financial consequence if one of the HILP events occurred. The amount that may quantify as part of HILP will be assessed in the final report. However, this has the potential to be billions of pounds.

#### 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.

There would be no roll out costs for this method, as the findings would provide a collaborative Network Operating Measures methodology

### 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

The potential for New Learning within this project would better inform all Network Licensees through the revision of the Network Operating Measures methodology.

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

This project fits within the Managing Assets value area of the Electricity Innovation Strategy.

- 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