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

Jan 2016

### Project Reference Number

NIA_NGET0174

## Project Registration

### Project Title

Embedded cyber risks within the procurement process

### Project Reference Number

NIA_NGET0174

### Project Licensee(s)

National Energy System Operator

### Project Start

January 2016

### Project Duration

4 years and 1 month

### Nominated Project Contact(s)

Samir Odedra

### Project Budget

£179,000.00

### Summary

Define a framework to reduce acquiring cyber risk through National Grid procurement process. Analyse, quantify and model the current cyber threat across the supply chain. Review the existing National Grid supply chain landscape, then targeting specific asset types and develop a procurement framework that embeds cyber security within the process.

### Third Party Collaborators

Engineering and Physical Sciences Research Council

### Nominated Contact Email Address(es)

box.so.innovation@nationalgrid.com

### Problem Being Solved

National Grid is increasingly buying intelligent assets which are critical to effectively operate the electricity and gas infrastructure in the UK. There is a risk that due to the lack of security awareness when purchasing, upgrading and deploying IT and OT assets, that vulnerabilities and malware are introduced. The consequences of the risk materialising is the loss of key systems supporting operations that could significantly impair and impact the ability to manage critical infrastructure; potentially leading to a loss of supply.

### Method(s)

EPRSC co-funded project.

Research:

- Review the problem space with key stakeholders in National Grid.
- Literature review.
- Review National Grid supply chain landscape.
- Review the threat landscape.
- Review how other industry peers manage this problem.

Development:

- Develop framework and review with stakeholders.
- Identify relevant assets which can be tested with the framework.
- Identify the tests needed to assess the framework to determine its effectiveness at reducing risk.

Demonstrate:

- Trial the framework, analyse and evaluate the reduction in risk.

## Scope

Define a framework to reduce acquiring cyber risk through National Grid procurement process. Analyse, quantify and model the current cyber threat across the supply chain. Review the existing National Grid supply chain landscape, then targeting specific asset types and develop a procurement framework that embeds cyber security within the process.

## Objective(s)

This project seeks to demonstrate cyber risks embedded within the procurement process can be reduced by developing a framework which can used to reduce risks.

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

n/a

## Success Criteria

Develop a framework that could be used in the procurement process.
The framework will contain protocols and procedures to be used when key operational assets are procured.
Test the framework by performing a deep dive on purchasing an asset National Grid considers critical, and measure if the embedded risk has been managed.

## Project Partners and External Funding

External Funding: EPSRC £69,000

## Potential for New Learning

Development and demonstration of a framework that can be used to reduce the cyber risks of inherent within purchasing key industrial assets within the energy industry.

## Scale of Project

The project is of the minimum scale possible (one 4 year industrial CASE PhD student).

## Technology Readiness at Start

TRL2 Invention and Research

## Technology Readiness at End

TRL4 Bench Scale Research

## Geographical Area

National Grid offices and partner university premises.

## Revenue Allowed for the RIIO Settlement

None

## Indicative Total NIA Project Expenditure

£110,000.

# 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)

We are conscious of the increased cyber security threats within the energy industry. Any malicious attacks involving key infrastructure assets will be intended to black out the UK. The estimated savings of preventing this type of catastrophic event is incalculable.

## Please provide a calculation of the expected benefits the Solution

Not applicable as this is a research project.

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

The infrastructure assets which this research project is seeking to protect are commonly within the energy industry, and as such the output from this project will be applicable and relevant to the whole of the industry.

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

Not known at this stage.

## 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 identified cyber risks are common across all TSO and DNOs. This research will help to increase cyber security and protect the energy infrastructure across the whole of the UK.

### 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

## 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.

Not an aspect presently studied elsewhere in the UK or Europe.

### 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