

NIA Project Registration and PEA Document

Date of Submission

Feb 2014

Project Reference Number

NIA_NGET0049

Project Registration

Project Title

Seconomics - Digital Risk and Cyber Security

Project Reference Number

NIA_NGET0049

Project Licensee(s)

National Energy System Operator

Project Start

April 2012

Project Duration

3 years and 1 month

Nominated Project Contact(s)

Steve Collins

Project Budget

£3,933,880.00

Summary

A number of different regulatory frameworks could be adopted. Each has its advantages and disadvantages. National Grid, being a regulated entity, has significant experience of the regulatory frameworks to which it is subject. From this, the key areas of interest are:

- To assess whether the current Critical National Infrastructure regulations adequately and appropriately ensure that National Grid mitigates the risks in the current state; that is, are the current regulatory frameworks fit for purpose?
- As National Grid and the energy industry across Europe moves towards the future state, analyse whether the current regulatory frameworks are flexible and adaptable enough to manage these changes;

Which regulatory structures would be better in the current and future states? And can we look at examples elsewhere in the world or in other industries?

Third Party Collaborators

European Commission

University of Aberdeen

Durham University

Nominated Contact Email Address(es)

box.so.innovation@nationalgrid.com

Problem Being Solved

Computers and communication networks are increasingly at the heart of economic growth generally, and are central to exploiting the potential that smarter management of energy network has to offer. Falling costs mean increasing data gathering and transfer from one place to another is becoming cheaper and easier, opening up opportunities to fundamentally change the way the electricity network, in particular, is operated and used.

As with most change, increasing our reliance on the internet brings new opportunities but also new threats. While cyberspace fosters open markets and smarter network operation, this very openness can also make us more vulnerable to malicious interference, compromising or damaging our critical data and systems.

In the UK, National Grid is not subject to mandatory regulation for cyber-security. European regulators of Critical National Infrastructure (CNI) operators have indicated that regulation in terms of cyber security is being considered. The purpose of this work is to provide recommendations to the European Regulators of regulatory systems that provide the frameworks to ensure the most appropriate approach to cyber-security.

Method(s)

SECONOMICS "Socio-Economics meets security" is a collaborative project within the 7th Framework Programme of the European Commission. The Scientific Director is based at the University of Durham, and the project is managed by the University of Trento. The project is examining current and future cyber threats and undertaking economic modelling to examine the behavioural, financial, and operational incentives and drivers for building protection under different possible future policy and regulatory régimes.

Scope

A number of different regulatory frameworks could be adopted. Each has its advantages and disadvantages. National Grid, being a regulated entity, has significant experience of the regulatory frameworks to which it is subject. From this, the key areas of interest are:

- To assess whether the current Critical National Infrastructure regulations adequately and appropriately ensure that National Grid mitigates the risks in the current state; that is, are the current regulatory frameworks fit for purpose?
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Which regulatory structures would be better in the current and future states? And can we look at examples elsewhere in the world or in other industries?

Objective(s)

The purpose of this work is to provide recommendations to the European Regulators of CNI systems in order to the most appropriate regulatory approach to cyber-security in respect of electricity transmission systems.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

- Overview of GB transmission system requirements related to cyber security.
- GB Transmission System Threat Assessment and Policy framework background.
- Economic models and analysis of optimal incentive approaches and schemes; policy white paper; raised awareness in the industry, leading towards consensus.

Project Partners and External Funding

External funding from European Commission £2,909,213.

Other partners £721,967.

Potential for New Learning

This area of research is critical to infrastructure security and has the potential to deliver new learning about the nature and scale of cyber threats and options for regulation that economically optimized.

Scale of Project

The scope of the project is to produce documents recommending policy, supported by economic, mathematical, and computational models. The project is being conducted predominantly as a desk top exercise.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL5 Pilot Scale

Geographical Area

The work packages that make up this project are being undertaken by a number of organisations and institutions in various locations throughout Europe.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

IFI = £112,000

NIA = £224,000

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)

If can reasonably be assumed that the motive behind a malicious attack to critical national infrastructure such as the energy networks would be to cause, or demonstrate the ability to cause, significant disruption to the GB economy.

Please provide a calculation of the expected benefits the Solution

Research project – not required

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

It is expected that knowledge gained will be applicable to all relevant sites and operations across the GB networks.

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

All GB network licensees will need to address increasing digital risk and threat to cyber-security as smarter network approaches are developed and rolled out across the networks.

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.

A review of other work being undertaken by other Network licensees has been completed, and we confirm that this research is not being done anywhere else.

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 part of its 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