

## NIA Project Registration and PEA Document

### Date of Submission

Jan 2014

### Project Reference Number

NIA\_NGET0120

## Project Registration

### Project Title

Evolution of Energy Storage and Demand Management Services.

### Project Reference Number

NIA\_NGET0120

### Project Licensee(s)

National Energy System Operator

### Project Start

April 2013

### Project Duration

1 year and 1 month

### Nominated Project Contact(s)

Glyn Kirkland

### Project Budget

£43,967.00

## Summary

This project seeks to maintain up to date understanding of latest developments in ES and DSM services, and to provide the Transmission System Operators perspective to inform ongoing and new projects supported through these forums. The forums will provide National Grid with leveraged access to extensive research on different projects involving energy storage and demand side management technology.

## Third Party Collaborators

UK Energy Storage Operators' Forum

Electrical Storage Network

North Sea Power to Gas

## Nominated Contact Email Address(es)

box.so.innovation@nationalgrid.com

## Problem Being Solved

Although many novel energy storage and demand side participation technologies, applications, operating practices and commercial arrangements are relatively immature, a growing number of organizations are involved in their exploration and development and they are evolving rapidly. It is increasingly impractical and inefficient to monitor developments at a project and individual research

facility/body level.

## Method(s)

National Grid has identified small number of industry bodies through which it can efficiently maintain up to date knowledge of the state of the art with respect to energy storage (ES) and demand side management (DSM) services relevant to the GB electricity transmission context.

These currently include: Energy Storage Operators' Forum, (ESOF), Electrical Storage Network (ESN) and North Sea Power to Gas.

## Scope

This project seeks to maintain up to date understanding of latest developments in ES and DSM services, and to provide the Transmission System Operators perspective to inform ongoing and new projects supported through these forums. The forums will provide National Grid with leveraged access to extensive research on different projects involving energy storage and demand side management technology.

## Objective(s)

The objectives of this project are as follows;

- Provide up to date information, research and evidence to understand the benefits that ES and DSM technology could bring to the transmission network for GB.
- Identify practical opportunities for future deployment and application of ES and DSM.

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

n/a

## Success Criteria

The success criteria for the project include:

- Contribute a GB TSO perspective on ES and DSM debate and innovation focus.
- Identify (or rule out) specific ES or DSM innovation projects to partner on or monitor.

## Project Partners and External Funding

UK Energy Storage Operators' Forum - £92,850

Electrical Storage Network - £44,000 (<http://www.electricitystorage.eu/>)

North Sea Power to Gas - £75,000 (<http://www.northseapowertogas.com/>)

## Potential for New Learning

Collaboration with the different forums will provide valuable insight into a variety of research projects involving the applications of the technology, commercial arrangements and operational implications of ES and DSM.

## Scale of Project

Participating in cross industry forums exploring ES and DSM provides leveraged and efficient access to new knowledge and opportunity to provide a transmission perspective into the development of solutions.

## Technology Readiness at Start

TRL2 Invention and Research

## Technology Readiness at End

TRL3 Proof of Concept

## Geographical Area

ES and DSM knowledge sharing event venues vary according to the forum. Predominantly they are in the UK (or Benelux region for North Sea Power to Gas)

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

Zero.

## **Indicative Total NIA Project Expenditure**

£43,967

## 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 project provides access to ES and DSM knowledge and resources at a cost of £43,967 that if sought in isolation would cost in excess of £211,850 (sum of leverage amount) the saving is by approaching the problem this way is approximately £167,883.

#### 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

Learning and experience gained from participation in energy storage forums could be applicable to electric transmission and distribution networks throughout GB.

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

Rolling out specific equipment, practice or commercial arrangements that result from these forums will be dependent on the project specific details. In the event that project specific innovation funding is required to enable this, a separate project will be established the specific details provided.

### 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 trialed 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

Any learning generated from participation in Energy Storage forums will be disseminated through the ENA portal & National Grid's website and presented at the Annual NIA Conference planned in 2014.

### 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.

By participating in these forums National Grid can ensure that unnecessary duplication of ES and DSM related projects undertaken with NIA or NIC funding is avoided.

### 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