

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 2013

### Project Reference Number

NIA\_NGGD0015

## Project Registration

### Project Title

SEAMS Analytical Pilot

### Project Reference Number

NIA\_NGGD0015

### Project Licensee(s)

Cadent

### Project Start

November 2013

### Project Duration

1 year and 6 months

### Nominated Project Contact(s)

Philip Halsey – National Grid Project Manager, Darren White – National Grid Innovation Portfolio Manager

### Project Budget

£122,724.00

## Summary

Scope of this project will include:

- The production of a pilot of the SEAMS software against a single asset class (Water Bath Heaters)
- Road map definition for implementation of the decision support tool highlighting where gaps may exist
- Optimisation scenarios
- Step by Step instruction on data handling
- Business Case
- Art of the possible

### Nominated Contact Email Address(es)

Innovation@cadentgas.com

## Problem Being Solved

National Grid is obliged under the RIIO regulatory framework to develop a more comprehensive view of its assets and their

management, in order to effectively manage future investment and risk.

Currently the majority of National Grid Gas Distribution's asset management tools are spreadsheet based and, whilst they are fairly sophisticated in their assessment of their associated asset, their separation from other tools make investment decisions across the entire asset fleet more difficult. There are also other tools which are used, such as the 'intervals' pipeline maintenance scheduler, which would benefit from assimilation into an all encompassing software system.

A new innovative software tool including the incorporation of the functionality of financial modelling, as well as the efficiency and transparency benefits of a single platform, would offer the ability to address this need, as well as potentially interacting with National Grid's own internal systems to deliver a more integrated approach.

The ultimate result would be a better insight in to the deterioration of National Grid Gas Distribution assets and the ability to pinpoint where future investment is required to deliver the greatest reduction in risk. This would correspond to increased efficiency and a safer network.

### **Method(s)**

This project requires the collection of appropriate data and development of deterioration curves for a single asset class. A WiLCO model for this single asset class will be produced to deliver business requirements and the 'art of the possible' will allow the identification of gaps and constraints such as available data before considering possible ways forward in the development of the wider project based upon knowledge of pilot and gaps identified.

### **Scope**

Scope of this project will include:

- The production of a pilot of the SEAMS software against a single asset class (Water Bath Heaters).
- Road map definition for implementation of the decision support tool highlighting where gaps may exist.
- Optimisation scenarios.
- Step by Step instruction on data handling.
- Business case
- Art of the possible

### **Objective(s)**

Development of an innovative pilot software model for single asset class determination, using Skipworth Engelhardt Asset Management Strategies Limited (SEAMS) software, to demonstrate analytical capabilities and to deploy a system that will enable National Grid to link asset management risk, financial outputs and regulatory outcomes as well as:

- Identify the investment questions that National Grid (NG) will want to address with their decision support tools.
- Deliver an analytical solution of a deterioration model for a single class for use in National Grid's on-going RIIO work.
- Pilot the application of WILCO software for that single asset class.
- Further define the roadmap for implementation of decision support, identifying the benefits being realised and the associated implications for NG in data and resources.
- Demonstrate the 'benefits' of moving to a stable technology platform for investment planning
- Identify what is possible with the information available and where gaps may exist

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

n/a

### **Success Criteria**

Success of the pilot will identify the level of efficiency afforded by the use of SEAMS as a single decision platform. This will be a

requisite of the production of the deterioration model for a single asset class and roadmap for full SEAMS implementation.

The deterioration models will be for both failure rates and condition based models but will only cover repairable failures.

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

n/a

### **Potential for New Learning**

n/a

### **Scale of Project**

This project includes development and demonstration of the SEAMS software which has been restricted to a single asset class.

### **Technology Readiness at Start**

TRL4 Bench Scale Research

### **Technology Readiness at End**

TRL6 Large Scale

### **Geographical Area**

Sheffield - SEAMS Ltd offices

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

No Revenue Allowed for in the RIIO Settlement

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

£122,724 total NIA project expenditure

## 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 a new innovative asset deterioration software model is adopted by National Grid Gas Distribution, for the effective management of future investment and risk, this is believed to have the potential to result in a 10% efficiency saving on a £18 million maintenance/replacement budget, which equates to an estimated total saving of £1.8 million.

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

(Base Cost of £18m maintenance/replacement budget) minus (Method Cost of £16.2m future maintenance/replacement budget) = £1.8m potential saving.

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

This method is applicable to all Network Licensees whom are seeking an asset deterioration model for water bath heaters.

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

£50k IS software support costs for roll out.

### 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 learning generated could be used by relevant Network Licensees where an asset deterioration model for the effective management of future investment and risk is sought.

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

Not applicable

- 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