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 2014

### Project Reference Number

NIA_NGGD0001

## Project Registration

### Project Title

Optimise Own Energy Use

### Project Reference Number

NIA_NGGD0001

### Project Licensee(s)

Cadent

### Project Start

July 2008

### Project Duration

6 years and 8 months

### Nominated Project Contact(s)

Shaun Bennett – Project Manager and Darren White – Innovation Portfolio Manager

### Project Budget

£3,969,511.00

### Summary

The scope of this project includes proof of concept, existing pre-heater equipment performance monitoring, site specific detailed design of new pre-heater installations, and installation and commissioning of new preheaters, under IFI. Under NIA the project is now to include novel pre-heating equipment evaluation and final documentation.

### Nominated Contact Email Address(es)

Innovation@cadentgas.com

### Problem Being Solved

This project is to inform our replacement water bath heater strategy by using two alternative techniques to determine efficiencies and optimise pre heating, asset life.

### Method(s)

This project will monitor energy usage on existing water bath and modular preheating systems against that of two preheating systems that have been installed and commissioned on National Grid Gas Distribution above ground installation sites. Field trials will be conducted to monitor the novel preheating systems and collect performance data which will then be used to produce a comparative life cycle assessment (LCA), detailing the costs and environmental benefits and impacts of the two pre-heater systems.

### Scope

The scope of this project includes proof of concept, existing pre-heater equipment performance monitoring, site specific detailed design of new pre-heater installations, and installation and commissioning of new preheaters, under IFI. Under NIA the project is now to include novel pre-heating equipment evaluation and final documentation.

## Objective(s)

This project seeks to reduce and optimise the energy used, and establish company wide best practice, for he use of alternative pre-heater technologies on water bath heaters.

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

n/a

## Success Criteria

Success of the project will be evaluated against the following criteria:

- All site monitoring and data capture complete.
- Site monitoring report produced.
- LCA Report produced.
- Final Report detailing project outcome and recommendations produced.

## Project Partners and External Funding

n/a

## Potential for New Learning

n/a

## Scale of Project

Installation and commissioning of CWT and HotCat pre-heat technology at two National Grid sites respectively (total of four sites), is deemed necessary in order to gain accurate performance reporting.

## Technology Readiness at Start

TRL3 Proof of Concept

## Technology Readiness at End

TRL8 Active Commissioning

## Geographical Area

Leicester, Leicestershire. Scawby, Lincolnshire. Starling, Great Manchester. Market Harborough, Leicestershire.

## Revenue Allowed for the RIIO Settlement

Revenue allowed for in the RIIO Settlement totals £40m.

## Indicative Total NIA Project Expenditure

£3,798,123 total IFI 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)

£595k per annum, for all water bath heaters – see below.

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

Increased reliability 102 water bath heaters x £2000 = £204k p.a.

Reduced maintenance costs 102 water bath heaters x £500 = £51k p.a

Improved longevity 102 water bath heaters x £50,000/15 = £340k p.a (based on an estimated modular boiler life of 15 years and replacement costs of £50k and a new system boiler / burner life of 30 years)

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

This Method could be applied to Water Bath Heaters across the whole of GB, the scale of which will vary upon Network Licensee.

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

Estimated cost of £100k per unit, for rolling out the Method across National Grid Gas Distribution.

## 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

Comparison of traditional water bath heater and modular boiler pre-heating methods, against that of novel pre-heating systems, will result in learning that can be applied by all Relevant Network Licensees where use of these technologies is prevalent.

### 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