

NIA Project Registration and PEA Document

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.

Project Registration

Project Title

Electricity and heat

Project Reference

NIA_ENWL_0017

Project Licensee(s)

Electricity North West Limited

Project Start Date

Jul 2016

Project Duration

2 Years

Nominated Project Contact(s)

cara.blockley@enwl.co.uk

Project Budget

£545,000

Problem(s)

Electricity demand will increase and change both through the adoption of low carbon technologies and general load growth; including the increased deployment of air conditioning. As traditional reinforcement to accommodate this load could be costly and disruptive, new and innovative solutions are being sought. Air conditioning systems tend to release a significant amount of heat as a by-product which is currently a wasted resource.

This project will investigate the feasibility of utilising the heat currently wasted to both improve overall energy efficiency (reducing electrical demand) and allow the electrical demand to be managed.

Method(s)

The project will be a mixture of research and development and will investigate how an innovative way of managing energy holistically can derive benefit for a Distribution Network Operator and their customers.

The project will be split into the following phases

Phase 1. Feasibility study that identifies and undertakes a detailed review of a trial site producing waste heat to investigate how the heat could be used to reduce and shift the overall energy requirements of the site. This phase will include the broad outline concept design, costing and potential benefits.

Phase 2. Design and budget for installation of one unit at the trial site.

Phase 3. Build, install, monitor and analyse the system operation at the trial site.

Phase 4: Dissemination of learning.

Scope

The project will be conducted at a single location and help understand how benefits for a Distribution Network Operator and their customers can be derived from improved energy management.

The scope of this project includes the adaption design work required to implement technology from other sectors in a trial site.

Objective(s)

This project has 4 primary objectives.

1. A trial installation to assess impact and opportunities for a GB DNO.
2. To determine the capability of the technology to assist in overall energy management.

3. To quantify the impact on metered energy consumption at the trial site.
4. To investigate the impact on timing of energy consumption at the trial site.

Achieving these objectives will support network operators in releasing network capacity for use by customers, particularly in areas of high and increasing demand.

Success Criteria

This project will be considered a success upon

1. A trial site being identified
2. The trial site being adapted such that sufficient monitoring and data is available to quantify potential cost and benefits
3. Production and publication of a report to disseminate the findings.

Technology Readiness Level at Start

2

Technology Readiness Level at Completion

5

Project Partners and External Funding

Futurebay, an energy technology provider will Partner on this project .

Potential for New Learning

The project has potential for learning through understanding the potential for utilising accessible waste energy to both reduce overall electrical load on the distribution network and to modify the electrical load requirements thereby assist in addressing peak load constraints.

The learning generated will be relevant to other DNOs as it addresses a common problem experienced on generic distribution network types.

Scale of Project

One trial site, which will be sufficient to demonstrate the flexibility and assess the potential benefit of this approach.

Geographical Area

North West of England

Revenue Allowed for in the RIIO Settlement

None

Indicative Total NIA Project Expenditure

545 000

Project Eligibility Assessment

Specific Requirements 1

1a. A 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 systems and 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

Specific Requirements 2

2a. Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

Please answer one of the following:

i) Please explain how the learning that will be generated could be used by relevant Network Licenses.

Outputs, including raw monitoring data and a report outlining findings from the project will be made available to all Network Operators. This learning can be used to understand the potential of using waste heat to reduce energy consumption and modify electrical demand hence delivering capacity at least cost to electricity customers.

ii) Please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the Project.

Our innovation strategy identifies six key innovation themes. This project has the potential to address challenges under four of those six themes; capacity, efficiency, customer service and commercial evolution.

If successful, this technique will enable us to maximize the use of existing assets whilst providing existing services at lower cost through avoidance of reinforcement. In addition, the technology, when proven, will be commercially available to customers enabling them to take advantage of new market opportunities and a wider choice of connection agreements.

2b. Is the default IPR position being applied?

Yes

No

If no, please answer i, ii, iii before continuing:

i) Demonstrate how the learning from the Project can be successfully disseminated to Network Licensees and other interested parties

ii) Describe any potential constraints or costs caused or resulting from, the imposed IPR arrangements

iii) Justify why the proposed IPR arrangements provide value for money for customers

2c. Has the Potential to Deliver Net Financial Benefits to Customers



i) Please provide an estimate of the saving if the Problem is solved.

This is a research to development project and as such it is not possible to estimate savings at this point. However recycling or repurposing waste heat could deliver energy system efficiencies and avoid reinforcement.

ii) Please provide a calculation of the expected financial benefits of a Development or Demonstration Project (not required for Research Projects). (Base Cost – Method Cost, Against Agreed Baseline).

N/a

iii) Please provide an estimate of how replicable the Method is across GB in terms of the number of sites, the sort of site the Method could be applied to, or the percentage of the Network Licensees system where it could be rolled-out.

If successful, the technology could be applied at any location that currently generates significant waste heat.

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

There is no rollout cost calculation available at present.

2d. Does Not Lead to Unnecessary Duplication



i) Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

A review of the smarter networks portal has not revealed any projects in this area.

ii) If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.