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

Sep 2013

Project Reference Number

NIA_NGN_014

Project Registration

Project Title

Carbon Monoxide Gascoseeker

Project Reference Number

NIA_NGN_014

Project Licensee(s)

Northern Gas Networks

Project Start

November 2011

Project Duration

2 years and 1 month

Nominated Project Contact(s)

Ian Reed, Steve Dacre and Alec Breen

Project Budget

£34,463.00

Summary

As carbon monoxide cannot be seen or tasted and does not smell, the use of equipment to aid detection is vital. This includes domestic audible carbon monoxide alarms manufactured to the European safety standard EN50291 Currently within NGN we have no single piece of equipment which can detect Carbon Monoxide, the current process of looking for discolouration to flames or soot around appliances, feeling nauseas or constantly tired, these visual inspections are all worthwhile but NGN felt that more had to be done to tackle this ‘silent killer’. Key Drivers

- Safety – To all Customers & Workforce
- Efficiency – To give the best service possible

The current Gascoseeker unit which NGN use monitors for gas parts per million only which is ideal for detecting leaks but we felt as an industry we needed to do more in protecting our customers and workforce against all the dangers posed by gas taking the proactive approach rather than re-active.

Third Party Collaborators

GMI Ltd

GL Noble Denton

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

As carbon monoxide cannot be seen or tasted and does not smell, the use of equipment to aid detection is vital. This includes

domestic audible carbon monoxide alarms manufactured to the European safety standard EN50291 Currently within NGN we have no single piece of equipment which can detect Carbon Monoxide, the current process of looking for discolouration to flames or soot around appliances, feeling nauseas or constantly tired, these visual inspections are all worthwhile but NGN felt that more had to be done to tackle this 'silent killer'. Key Drivers

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Method(s)

Gascoseeker technology has been in operation since the early 1980's with the current monitoring equipment being in use for circa 5 years. With this in mind the existing Gascoseekers used by our workforce are due for replacement early in the RIIO-GD1 period. The reason for this is the current Gascoseeker units are becoming obsolete due to unavailability of spare parts, replacements etc. As set out in Section 6 of the RIIO-GD1 Business Plan, we plan to replace them with equipment which incorporates the capability to undertake CO & Oxygen detection alongside natural gas. There was strong feedback from our stakeholders that our emergency staff should have this capability and therefore Northern Gas Networks are currently trialling suitable equipment.

Scope

Review current NGN/PM/EM72 and emergency response procedures for dealing with internal gas escapes (possibly expansion to other non emergency situations) reviewing current practices with an overlay of the new available technologies and the impacts they will have by use of the operational flexibility. Actions

- Select suitable CO and oxygen detection devices
- Select geographical area for trial of detectors
- Train operatives in use and reporting techniques of trial
- Complete an 8 to 12 month operational trial
- Intermediate and final stage gates and close out meetings
- Report and presentation of findings to NGN Senior Management Team
- Redraft EM72 to take into account new procedures
- Review EM71, EM74 procedures and re-draft if nescessary

Investigate the possibility of using the existing SAP system to record outcomes and information with the use of electronic data transfers removing the need for hard copies to be kept.

Objective(s)

Deliverables The deliverables will comprise of:

- A full and thorough operational trial of new technologies and procedure
- A report presenting results and recommendations
- A revision to operational procedures to ensure CO is part of BAU when rolled out.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

- Produce addendum to current practice (EM72) for use within the trial area only
- Liaison with equipment provider for the training and up skilling of trial participants
- Monitor and report on the progress and issues and deliverables during the operational trial period
- Prepare a technical report which describes the methodology and data used and disseminate knowledge from lessons learnt.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

It was decided that a trial starting from November 2011 - March 2013 would be most beneficial as this would capture both low work load times and the high volume work period of autumn and winter. This trial has now been extended to incorporate all areas of the Customer Operations sector.

Technology Readiness at Start

TRL6 Large Scale

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

Trial will be concentrated in the West Yorkshire Area.

Revenue Allowed for the RIIO Settlement

All the Gascoseeker investment is driven directly by section 7.5.6 within the RIIO-GD1 business plan:

Indicative Total NIA Project Expenditure

£34,461.50

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)

The Value of Preventing Carbon Monoxide To estimate the value of saving a life or preventing an injury this research takes into consideration 'pain, grief and suffering; lost economic output; medical and healthcare costs; material damage; police costs; insurance administration; and legal and court costs'. Based on figures provided by the All Part Parliamentary Safety Working Group published in June 2009, the value of preventing a fatality is £1,585,510, whilst the value of preventing serious or minor injuries is £193,677 and £14,932 respectively.

Latest data published by the Department of Health in January 2011 show the average cost of a patient attending A&E as £95, whilst an emergency admission where the patient stays in for more than one day costs on average £1,360. Similarly, the cost of an ambulance attending an incident where carbon monoxide is suspected costs on average between £223 and £254, depending on whether or not the situation is immediately life threatening. This suggests that the cost of carbon monoxide poisoning is significant and based on the government's approximate figures, these incidents together could be costing the country as much as £177,738,900 annually.

Please provide a calculation of the expected benefits the Solution

The average time per job in the trial area is 7 minutes more than other areas of the network which currently doesn't utilise the new Gascoseeker. The additional time is generated by additional CO activities associated with the trial.

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

This is replicable across all businesses. Without the equipment other GDN's can still adopt many of the learning encounted during the trial within existing processes and can freely adopted NGN's changes to procedures.

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

£20.0m

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 network encounter Carbon Monoxide incidents either reported or as part of the normal emergency cover duties. The learning from this project has been published in an industry wide report on the data collected, incidents uncovered and potential lives saved. This has also been shared with industry safety groups and discussed with wider with interested parties.

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

Within Innovation Strategy we stated "We are looking at innovating ways of delivering carbon monoxide and gas safety awareness" NGN is committed to roll out the technology developed and the procedures produced as part of this trial within RIIO-GD1

☑ 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