national gas transmission

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

Dec 2013

Project Reference Number

NIA_NGGT0004

Project Registration

Project Title

Development of a Risk Based Asset Management Tool

Project Reference Number

NIA_NGGT0004

Project Licensee(s)

National Gas Transmission PLC

Project Start

November 2013

Project Duration

1 year and 1 month

Nominated Project Contact(s)

David Mccollum, box.GT.innovation@nationalgrid.com

Project Budget

£54,000.00

Summary

The current process is significantly manual. The linked tool would automate various stages of the process. The tool will deliver:

- The combined tool will allow National Grid to collectively manage the risks across all sections of the Network, and anautomatically updated risk-profile could be obtained. This risk data could assist National Grid with, for example, investment decisions. Novel ways of displaying the output data from risk assessments would be incorporated. This would provide up-to-date and readily accessible information for the user.

- The linked package would provide a new feature in that risk assessments could be undertaken along the pipe, not just at infringement points as at present.

The results of the risk assessments will be displayed as hazard contours surrounding the pipe in Uptime. This will provide National Grid with a useful multi-purpose tool, in which a broad selection of asset properties can be viewed in a single application to be used in the development planning and emergency management processes.

Third Party Collaborators

DNV

Nominated Contact Email Address(es)

Box.GT.Innovation@nationalgrid.com

Problem Being Solved

National Grid Gas transmission utilises a system, “Uptime” to assist with the management and storage of detailed information on gas

transmission pipelines. Currently, this activity is focused on recording information on Cathodic Protection (CP). However, Uptime is a powerful tool, capable of a much wider range of applications. It has been identified that there would be great benefit in the development of Uptime to streamline the process associated with affirmation of Maximum Operating Pressure surveys to facilitate site specific risk assessments of pipeline infringements. Such a tool will allow National Grid to collectively manage risks by providing a risk profile across the network and a display of high-level risk profile across the National Transmission System, including visualisations of risk assessment results to ensure sound decision making.

Method(s)

The proposed Method is as follows:

A. Pipeline Data Extraction and Migration

B. Development of Risk Manager Module

C. Configure Uptime

D. Linked Package "PIPESAFE Light" to include

- Risk overview of the Network.
- Hazard distances
- Emergency planning distances.
- Societal Risk.
- A table of pipeline infringements.
- A reference to any relevant risk assessments will be included.

Relevant fault/incident records (linked to the fault / incident point on a map).

Scope

The current process is significantly manual. The linked tool would automate various stages of the process. The tool will deliver:

- The combined tool will allow National Grid to collectively manage the risks across all sections of the Network, and an automatically updated risk-profile could be obtained. This risk data could assist National Grid with, for example, investment decisions. Novel ways of displaying the output data from risk assessments would be incorporated. This would provide up-to-date and readily accessible information for the user.
- The linked package would provide a new feature in that risk assessments could be undertaken along the pipe, not just at infringement points as at present.

The results of the risk assessments will be displayed as hazard contours surrounding the pipe in Uptime. This will provide National Grid with a useful multi-purpose tool, in which a broad selection of asset properties can be viewed in a single application to be used in the development planning and emergency management processes.

Objective(s)

To develop a risk based asset management tool incorporating novel visualisations of risk profiles across the National Transmission System (NTS).

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Delivery of a software tool to include a risk overview of the network and predicted hazard ranges.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

An integrated network tool will be developed that is applicable to all National Grid's transmission pipelines. This network view will enable National Grid to collectively manage risks with an effective, sound decision making process.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

The tool will be used across the NTS.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

£54k

Previous IFI expenditure (£122.5k)

This project started under IFI and continues under NIA but with new NIA compliant terms and conditions.

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 benefits are predominantly associated with risk avoidance. A pipeline failure on the NTS would be an incident with far reaching consequences from multiple fatalities, loss of supply, environmental damage, damage to loss of reputation and loss of license.

Please provide a calculation of the expected benefits the Solution

The BP incident in the Gulf of Mexico has cost in excess of £40billion, and an incident on the Belgian transmission system, Fluxys, resulted in the death of twenty four people when a pipeline ruptured following third party damage. The model will provide a robust and consistent methodology for undertaking the most appropriate mitigation actions across the NTS.

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

The Method is applicable the National Grid Transmission system. The Method could be adopted by other licensees using the Uptime software as it builds up from the existing Uptime data and capability.

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

It is not expected that there would be any further costs for implementation. Following successful delivery of the tool, the tool would be used by the Asset Safety and Integrity team.

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 will be used in the process of risk assessments whereby risk assessments can be undertaken along the pipe, rather than just at the point of infringements and also the visual developments will give a network risk profile that is not currently available with existing tools.

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

This project is aligned to the safety theme.

☑ 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