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

May 2016

Project Reference Number

NIA_NGGT0095

Project Registration

Project Title

Technical Standards Strategy

Project Reference Number

NIA_NGGT0095

Project Licensee(s)

National Gas Transmission PLC

Project Start

June 2016

Project Duration

0 years and 7 months

Nominated Project Contact(s)

Richard Waine, box.GT.innovation@nationalgrid.com

Project Budget

£38,000.00

Summary

The scope of the project is a strategic review of National Grid's management and application of technical standards, as described above.

Third Party Collaborators

Pipeline Integrity Engineers Ltd

Nominated Contact Email Address(es)

Box.GT.Innovation@nationalgrid.com

Problem Being Solved

NGGT has over 600 Technical Standards that are applied by the business for the safe design, construction and operation of its transmission network. The Standards form a suite of documents that are inter-related and complex in detail; therefore it is critical to have an effective documentation system that can be used by the business.

The current system for managing and applying Technical Standards can be referenced back to when the GB Gas Industry was an integrated business (prior to 2003), indeed many of the technical specifications are based on requirements that were detailed over 40 years ago. This system of Technical Standards was based on a large internal supporting team of industry experts, who researched, published and managed technical requirements. The designed method of communication to end users was by hardcopy material.

The current NGGT business and its operating environment are significantly different to the historical Gas Industry described above, specifically in respect to:

- Reduced asset base
- New build projects are typically replacement / refurbishment rather than large scale pipeline projects
- Large internal technical support teams not available
- Softcopy technology now prevalent over hardcopy systems
- Advances in IT systems enable advanced approaches to the representation of, and interaction with, complex data and documents

For the above reasons it is proposed to perform a strategic review of how NGGT manage and apply Technical Standards, for the purpose of establishing an effective system that meets the business needs into the future.

Method(s)

Part 1: Stakeholder requirements

Objective:

A clear understanding of stakeholder and user requirements. Innovative processes to support an agile technical standards management approach.

Method:

A review of NGGT Stakeholders requirements will be conducted with appropriate internal stakeholders. This will require internal research within NGGT as part of the innovation project, and will include face to face meetings / online surveys to establish a broad understanding of what the different stakeholders require from the Technical Standards in respect to process, detail and application. PIE will be provided with output from an internal user engagement process to support this process.

A review will be conducted of the development of engineering standards and specifications in the gas industry, including linkages to relevant UK, European and International Standards over time.

A document application matrix will be drafted which will record what documents exist and verification of current need. This background will then be assessed to determine which are in regular use and the risk to the business using an enhanced version of the current risk assessment method.

The above assessment will explain and define the difference between national and international standards (which present the baseline to applied by all) and company requirements, which are more specific and are aimed at controlling specific issues/costs. A typical example here is the use of dimensional specifications used in purchase of materials/fittings.

Output:

An innovative process to determine and monitor ongoing stakeholder requirements; a document application matrix; a technical standards business impact risk assessment process; a gap analysis process to determine the differences between international and national standards.

Part 2: Comparative Industry Review

Objective:

Visibility of processes to manage technical standards and content across technical industries, enabling development of an innovation strategy.

Method:

The review will compare NGGT practices and systems with other industries. This would identify and prioritise areas for further research, based on their costs vs benefits and how they fit into the strategy, which would lead to separate NIA's / NIC's.

Specifically the review will examine:

- How do other gas networks, pipeline operators, oil and gas operators and industries approach the management and deployment of technical standards to their users?

- How have these business leveraged the use of technology to improve standards in a lean operating environment?

- What strategy are these businesses using in terms of using international, European and British standards?

- Where are the opportunities to take an innovative approach to technical standards management and deployment?

The good practice elements for managing and implementing technical requirements will be established by identifying relevant "other industries", i.e. ones that have a complex asset base, are subject to regulatory control, and have a significant safety consideration to their operations, e.g. O&G, Pharmaceuticals, Aviation etc.

The review will include selection of the correct model. Other major oil and gas companies may still have a major design and build interest. Therefore NGGT can model on this, or develop modern, safe and cost effective engineering requirements for a utility industry. Government initiatives (see ICE study) would also be considered.

Output(s):

The output will be an assessment report, and recommendations for what NGGT to focus technical standards innovation.

Part 3: Engagement Technology Watch / Literature Review

Objective:

Identified opportunities to improve user engagement through application of technology and systems in working environments with mature feedback loops.

Method:

NGGT are already making a significant investment in technology across the business, and to build on this there is an opportunity to specifically improve document lifecycle and explore dynamic content management in the business. This would include consideration of live feedback processes, e.g. analogous to online communities which would aim to improve engagement with operational personnel and allow discussions around documents, easy technical queries and deviations, visual representation of documents to read etc.

A research study would be conducted into user requirements across other businesses/industries as detailed in part 2 above, thereby giving exposure to more mature IT systems and technologies and allowing an innovative view.

The USA, Canada and Australia, for example, all have very active regulatory and code development groups, which drive IT solutions for integrity management, data management and reporting. We could consider USA too (their more modern operators), and seeing what NG do in the USA would be useful.

It would be interesting to investigate current information research being carried out, and also who are the leaders here.

Output:

The output will be a short report, and recommendations to direct innovative engagement activities. The recommendations will be combined with output from engagement activities with technical standards customers and stakeholders to form the basis the Technical Standards Strategy develop project. The technical standards strategy will drive the direction of technical standards over 3 years including innovation focus.

Scope

The scope of the project is a strategic review of National Grid's management and application of technical standards, as described above.

Objective(s)

The objectives of the innovation project are to:

- A clear understanding of stakeholder and user requirements to support Part 2 and 3 of the project. Innovative processes

to support an agile technical standards management approach .

- Determine industry practice (pipeline operators and other industries) for the management and application of technical standards, and report findings.

- Review the identified opportunities to improve user engagement through application of technology and systems in working environments with mature feedback loops.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The success criteria for the project will be the delivery of an umbrella strategy report which allows National Grid to make a step change in its approach to the management and application of technical standards.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

The project is desk based.

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL3 Proof of Concept

Geographical Area

The project would take across PIE's facilities and NG locations.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

£38,000

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 study will deliver an implementation strategy for National Grid to improve their management and application of technical standards. This will establish a state of the art solution for National Grid which will optimise the quantity and content of technical standards, and define an efficient mechanism both for communicating the requirements to operations personnel, and generating a live feedback process. Other benefits include:

- Enabling National Grid to increase the supplier base improving supplier competition and opportunities to optimise value in the supply chain.
- Focus and increase National Grid influence across industry standards creating the opportunity for wider UK gas industry benefits to be realised.
- Drive documentation update cycle efficiency and lead time, improving agility and integration of innovation into technical standards.

Please provide a calculation of the expected benefits the Solution

N/A - low TRL

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

Providing the approach is successful it is applicable to all other GB networks.

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

The costs to implement the developed strategy across NG operations and other GB networks will be determined once the strategic framework is finalised. The strategic framework will identify innovation opportunities in the areas of technical standards governance, collaborative document creation and management, content storage, delivery, consumption and understanding.

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 innovation is equally applicable across all UK Networks, as they all have a similar approach to the management and application of technical standards.

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

N/A

☑ 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