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

Mar 2018

Project Reference Number

NIA_NGN_223

Project Registration

Project Title

Smart SLG Phase 1 – Automated plans

Project Reference Number

NIA_NGN_223

Project Licensee(s)

Northern Gas Networks

Project Start

March 2018

Project Duration

0 years and 9 months

Nominated Project Contact(s)

Ben Loker

Project Budget

£160,000.00

Summary

Phase1 will focus on:
• Selecting an agreed set of Chapter 8 Traffic Safety Measures and Signs for Road Works and Temporary Situations scenarios. In partnership with NGN
• Writing the rules for these scenarios to automatically generate the plans
• Selecting and agreeing a study area
• Creating the required symbology for the plans.
• Providing the ability to:
o Select an area of the road network.
o Based on the selection run an automated process
o Produce a plan output complying to chapter 8 with correct symbology as a PDF
• Provide NGN with a desktop or mobile environment they can test the scenarios in their own offices. This will be limited to three people
• Demonstrate the (proof of concept) POC to interested local authorities

Third Party Collaborators

1Spatial

Leeds City Council

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

In the operation and maintenance of network assets, it is often necessary to put in place temporary traffic management measures to facilitate safe road works, temporary closures or incident management, whilst keeping the traffic flowing as freely as possible. Health and Safety legislation imposes a duty upon designers to ensure that their temporary traffic management arrangements are installed,

modified and maintained throughout all on-site working
Maintaining compliance with Traffic Signs Manual Chapter 8, working on Street works, presents issues regarding what materials are required for correct Signing Lighting & Guarding. Maintaining this compliance throughout the project involves, regular communications between operators and support staff, delivery driver making trips to/from site and on-site safety inspections. It is estimated that around £2.5m a year is spent, across all utilities in the UK, overcoming complex site challenges, resulting from errors in initial design.

Method(s)

This development and demonstration project will provide a secure web platform accessed via any device or operating system (mobile or desktop). Locations of high impact, where traffic management is required, a Traffic Management Plan is required to be provided to the local highway authority and relevant stakeholders. This is typically a CAD drawing provided by third parties as a bought in service and follows on from site visits to discuss and agree methods of working.
It will consist of:
Phase one
• A mapping interface containing both imagery and road network data including the Unique Street Reference Number (USRN) data. A reporting engine to automated report production of traffic management plans.
A business workflow tool, configured to generate appropriate Signing Lighting & Guarding requirements. Based on data input, this could also be displayed in the map view.

Scope

This is a collaboration between 1Spatial, NGN and one local authority to make sure the application meets requirements and user expectations, before extending to other local authorities.
Phase one
This stage will be limited to the Leeds city council area only.
There will be agreed acceptance criteria for the completion of stage one. This will focus on the automated outputs produced and the process for doing so.

Objective(s)

Phase1 will focus on:
• Selecting an agreed set of Chapter 8 Traffic Safety Measures and Signs for Road Works and Temporary Situations scenarios. In partnership with NGN
• Writing the rules for these scenarios to automatically generate the plans
• Selecting and agreeing a study area
• Creating the required symbology for the plans.
• Providing the ability to:
o Select an area of the road network.
o Based on the selection run an automated process
o Produce a plan output complying to chapter 8 with correct symbology as a PDF
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Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The project will be judged a success if the project results in:
1. Provide a mobile or desktop suite (final number to be agreed under construction) street works designs
2. Can add and modify signage designs
3. Must be able to be accessed and used by both field and office-based staff
4. Produce high quality street works plans that can be sent and accepted by Local Authorities
Report on clear specification requirements for future developments and enhancements, not covered in this initial project.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

This project is the result of a call for innovation via the Energy Innovation Centre to address a significant problem associated with accurate, compliant and high-quality traffic management systems. With the rapid development of information systems Northern Gas Networks believes there is an opportunity to increase performance around traffic management.
The project aims to develop a solution that recognises the exact work area location, including Unique Street Reference Number (USRN), has functionality to cross reference Traffic Signs Manual: Chapter 8 Traffic Safety Measures and Signs for Road Works and

Temporary Situations, and dictate what the minimum Signing Lighting & Guarding requirements are.
In addition, the solution should identify the area requiring temporary guarding and be able to produce an automated Traffic Management plan for submission to local authorities and other stakeholders.
The solution aims to deliver the following benefits:
• Efficiency saving through reducing cost of specialist bought in services.
• Cost savings through reducing effort involving wasted trips due to accurate planning and logistics requirements.
• Environmental savings as a resulted of reduced vehicle trips to/from site.
• Stakeholder benefits are accurate design and site layout received in a timely manner.
• An automated system that can be pre-determined to identify hotspots areas of special focus.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL6 Large Scale

Geographical Area

NGN Network area

Revenue Allowed for the RIIO Settlement

Yes as part of the operational delivery of the gas mains replacement program, emergency and repair activity and connections activity. This type of operation does not exist at present and is technically impossible. The development of this proposal may unlock a future way of undertaking customer impact assessments and production of automated traffic management plans .

Indicative Total NIA Project Expenditure

NGN External expenditure £120,000
NGN estimated internal expenditure £40,000
NGN total project costs £160,000

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)

This is a development and demonstration project that will build a desktop prototype and will require further development via a second phase to realise full benefits.
The forecasted future project benefits are primarily qualitative. Whilst there will be some immediate quantitative financial benefits, the quantifiable benefits will need to be proven over time to allow assessment relating to improvement over the existing manual process. This project has the potential for network Licensee's to undertake street works impact assessments to identify in seconds at the click of a button and produce automated traffic management plans and understand customer impact zones via an automated function to deliver a more efficient and high-quality service.

This will assist network designers, planners and operational engineers to complete work with greater efficiency via an in-house provision without the need for engaging a specialist service.

Please provide a calculation of the expected benefits the Solution

This is a development and demonstration project that will build a desktop prototype and will require further development via a second phase to realise full benefits, as stated in detail above However, upon further investment to progress this from desktop demonstrator into a network wide web-based solution a forecasted network financial benefit of £34,580 per annum will be achieved.

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

Upon further investment and development, this is applicable to all Network Licensees, therefore a potential benefit of £276,640 per annum.

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

As above – Cost to be determined upon full completion.

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 networks are required to undertake street works as part of operational deliver and this solution could therefore be transferable.

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

The challenge identified for improvement in this instance relates to Customer Service and also Asset and Network management, this project has the potential for network Licensee's to undertake street works impact assessments, produce automated traffic management plans and understand customer impact zones via an automated function to deliver a more efficient and high-quality service.

☑ 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