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

Jun 2022

Project Reference Number

NIA2_SGN0023

Project Registration

Project Title

Hydrogen MOBS Data Analysis Phase 1

Project Reference Number

NIA2_SGN0023

Project Licensee(s)

SGN

Project Start

June 2022

Project Duration

0 years and 4 months

Nominated Project Contact(s)

David Raymond

Project Budget

£35,400.00

Summary

This project will generate a harmonised list of multiple occupancy buildings (MOBs) for all gas distribution networks (GDNs) and present this data in an accessible dashboard. This will include Riser sites and MPRN details.

Nominated Contact Email Address(es)

sgn.innovation@sgn.co.uk

Problem Being Solved

Most of the research focus on hydrogen to date has targeted on smaller, simpler end user systems (e.g., simple one and two storey dwellings) but there is a need to understand hydrogen as applied to Multi Occupancy Buildings (MOBs). MOBs connected to natural gas represent a significant portion of domestic dwellings (many of which are classed as vulnerable customers) and non-domestic buildings. It has been identified that flatted properties make up 21% of the UKs domestic heat load. GDNs need to be fully consider these properties and make an assessment for likely conversion opportunities.

To understand conversion opportunities, GDNs must have a robust methodology to identify and characterise these Riser/Building Asset data.

This will require gathering and compiling data from all GDNs in a harmonised fashion, enabling GDNs to investigate and compare their current MOB and riser stock.

Method(s)

The project will generate a list of MOBs for all GDNs and present them in a harmonised fashion

This will involve 3 Stages:

1. Data Collection

2. Data Processing

3. Data Presentation / Dashboarding

The key output will be a harmonised list of all MOBs across GDNs presented in a dashboard environment allowing easy access to results identifying potential building types to be assessed for Hydrogen suitability assessment process.

Scope

The project will make use of existing datasets from previous projects looking at complex distribution systems (CDSs) including:

- OS Mastermap (TOID Boundaries) – Used to determine the building extent of any CDS,
- OS AddressBase Premium (Properties) –Used to identify properties within OS Mastermap TOID boundaries,
- OS Sites – Provide site extents of airports, schools, medical facilities, and transport hubs.

Asset Network – Used to determine capacity of network close to potential CDS. Also provides information on known or potential service mains (Approach Mains).

- MRPN – This data is geolocated to OS AddressBase Premium or linked via attribution to the Unique Property Reference Number (UPRN). It also provides indicative information about the Riser/Building Asset survey data. – The latest riser risk surveys will be required.
- Postcode boundary data.

Data will be processed to generate attributes that will be used in later project stages, and in particular the usage and asset health/risk of a riser. This will consist of the following tasks:

- Allocating MRPN to OSMastermap Topological Area dataset using OS TOID referencing,
- Allocating MOBs to OSMastermap Topological Area dataset using OS TOID referencing,
- Providing a summary of network characteristics at different postcode levels,
- General linking of dataset via spatial processing or attribution in provided data

Objective(s)

The objective of this project is to compile and harmonise MOB and riser data across GDNs that can be further examined for conversion to hydrogen. This will involve a number of steps:

- Data collection and linking of key data, both existing and new data
- BI Dashboard using the existing CDS dashboard to help communicate results and allow for easy access

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

MOBs connected to natural gas represent a significant portion of domestic dwellings (many of which are classed as vulnerable customers) and non-domestic buildings.

To understand conversion opportunities, GDNs must have a robust methodology to identify and characterise these Riser/Building Asset data.

This will require gathering and compiling data from all GDNs in a harmonised fashion, enabling GDNs to investigate and compare their current MOB and riser stock.

Success Criteria

The success criteria will be a harmonised list of all MOBs across GDNs presented in a dashboard environment. This is to include Riser sites and MPRN details.

Project Partners and External Funding

ICS Consulting Limited

Potential for New Learning

The project will produce a harmonised list of all MOBs across GDNs presented in a dashboard environment allowing easy access to results. This data will be essential to help GDNs understand conversion opportunities in MOBs.

Scale of Project

The project will be a desktop study, with regular engagement between SGN and ICS Consulting project teams. This is the first data phase assessing MOBs data at uk level prior to the follow on engineering and technical assessment of potential physical conversion changes required (at scale) for mobs, against a defined population delivered from this work.

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL3 Proof of Concept

Geographical Area

The output of this project will be a harmonised list of all MOBs across GDN areas in GB.

Revenue Allowed for the RIIO Settlement

Not applicable

Indicative Total NIA Project Expenditure

SGN External – £26,550

SGN Internal – £8,850

Total – £35,400

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:

To understand conversion opportunities, GDNs must have a robust methodology to identify and characterise complex distribution systems.

This will require gathering and compiling data from all GDNs in a harmonised fashion, enabling GDNs to investigate and compare their current MOB and riser stock.

The project will produce a harmonised list of all MOBs across GDNs presented in a dashboard environment allowing easy access to results. This data will be essential to help GDNs understand conversion opportunities in MOBs.

How the Project has potential to benefit consumer in vulnerable situations:

Not applicable

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)

Not applicable

Please provide a calculation of the expected benefits the Solution

Not applicable

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

The output of this project will be a harmonised list of all MOBs across GDN areas in GB.

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

Not applicable

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 project will produce a harmonised list of all MOBs across all GDNs presented in a dashboard environment allowing easy access to results. This data will be essential to help all GDNs understand conversion opportunities in MOBs.

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

Not applicable

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.

The scope has been reviewed against all existing projects and no areas of duplications have been identified.

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

Not applicable

Additional Governance And Document Upload

Please identify why the project is innovative and has not been tried before

Most of the research focus on hydrogen to date has targeted on smaller, simpler end user systems (e.g., simple one and two storey dwellings) but there is a need to understand hydrogen as applied to Multi Occupancy Buildings (MOBs). MOBs connected to natural gas represent a significant portion of domestic dwellings (many of which are classed as vulnerable customers) and non-domestic buildings. It has been identified that flatted properties make up 21% of the UKs domestic heat load relates and GDNs need to be fully consider these properties and make an assessment for likely conversion opportunities.

To understand conversion opportunities, GDNs must have a robust methodology to identify and characterise complex distribution systems.

This will require gathering and compiling data from all GDNs in a harmonised fashion, enabling GDNs to investigate and compare their

current MOB and riser stock.

Relevant Foreground IPR

Not applicable

Data Access Details

Any consumer data gathered throughout this project will be anonymised and will be compliant with General Data Protection Regulations (GDPR) and the UK Data Protection Act. Any compliant data can be made available for review upon request.

Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

The project is carrying out research and development on an emerging technology. This technology is at a low technology readiness level and as such it is not part of the usual activities of the business.

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

The NIA framework offers a robust, open framework to support this work and ensures the results are disseminated to all licenses. The project will address key data requirements to enable an understanding of conversion opportunities in MOBs.

This project has been approved by a senior member of staff

☑ Yes