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

Oct 2022

Project Reference Number

NIA_NGN_414

Project Registration

Project Title

HVT Legislative and Regulatory Analysis

Project Reference Number

NIA_NGN_414

Project Licensee(s)

Northern Gas Networks

Project Start

August 2022

Project Duration

0 years and 8 months

Nominated Project Contact(s)

mcockayne@northerngas.co.uk

Project Budget

£500,000.00

Summary

This project will define the commercial and regulatory model for supply of hydrogen via the gas network, as part of Stage 2 of the detailed design of the Hydrogen Village Trial (HVT). The work will build on the HyNet Homes WP4 Commercial & Regulatory study for Cadent, undertaken by Element Energy and Simon Griew Consulting.

HVT is a trial designed to develop a greater understanding of both the operational and commercial impacts of converting from Methane to Hydrogen as an alternative energy source for heat. HVT is one of several incremental phased trials, the approach is intended to be scalable and its output intended to inform future Town and City trials.

Third Party Collaborators

Xoserve Ltd

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

Previous trials such as Hydeploy have been limited in scope, the H100 trial is still in progress and so provides limited opportunity for learning prior to completion of the detailed design phase of HVT. Existing systems and frameworks are both costly and time consuming to change, in addition any trial will have to make provision for rollback. These factors / constraints determine that a degree of manual intervention in processes will be required and some assumptions made as a full end to end test may not be possible or practical. Solutions developed during this phase will therefore be based on a minimum change basis, with only unavoidable cost being incurred.

Method(s)

Appointment of Element Energy to support the development of the commercial and regulatory framework for HVT. Helping to provided effective management of the project through dedicated PMO and industry experience.
Together with the set up of a dedicated workstream to review the commercial and regulator impacts of transitioning the existing methane gas network to hydrogen. Made up of representatives from all DN's Xoserve and it's service provider Correla the group will assess the impacts of the trial on existing central systems and regulatory frameworks, its role to develop potential solutions and make recommendation for change to prevailing industry codes.

Scope

Review of progress and key developments since the Phase 1 study
Review progress on H100
Review other relevant publications
Discuss with key stakeholders
Document key developments and their implications

Review the Phase 1 proposals and identify areas for further development
Line by line review of proposals to assess impact of developments since P1
Discuss with key stakeholders to establish and agree priority areas
Develop more detailed project plan based on priorities and anticipated resource requirements

Develop options for scalable solutions and the village trial
a: Develop options for structural or process changes

Develop options for framework design to enable supply of hydrogen in the
HVT and assess scalability to town/city scale. This will focus on key structural and process changes required, for example considering issues such as settlement & billing, metering, energy balancing and security of supply.
Develop market framework assumptions to underpin commercial/regulatory solutions in consultation with BEIS/Ofgem and other senior stakeholders
Assess H100 approach for suitability
Identify options for scalable solution with implementation implications and pros/cons
Propose scalable solution or, if not feasible, identify further work required to establish preferred approach
Assess feasibility of adopting a scalable solution to village trial.
Identify alternative options for village trial

b: Assess impacts of options on industry codes and legislation

Assess the implications of the framework design options for the industry codes, GS(M)R, licence conditions and other legislation. We will also assess the impact on the consumer.
Working with the GDN's legal advisors, we will identify changes to the codes, licences and other legislation required to facilitate the proposed solutions.
Identify necessary modifications and any derogations required to enable the option to operate for the HVT (i.e. supply of hydrogen in 2025).

Consultation on options and recommended approach
Consult stakeholders on alternatives
Establish preferred approach based on feedback received
Document preferred approach

Produce final project outputs

Production of Interim and Final Deliverables as required by the GDNs and BEIS / Ofgem

The outputs from the project will further inform modification to existing codes (UNC/ REC & SEC) legal support and drafting is anticipated to be procured via Dentons.

Objective(s)

The object of this project is to assess the commercial and regulatory impact of transitioning circa 2,500 customers in Redcar over to hydrogen as a source for heat. Impacts on the existing industry codes (UNC/ REC/SEC), systems and operating procedures will be

assessed and alternative solutions developed/ proposed to overcome challenges identified.
The outputs from this project are expected to be scalable to support future phases of town, city and whole system roll out should government give the go ahead for hydrogen as a source for heat.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

Not applicable the trial impacts on a small group of customers in a specific geographical location the ethos of the project is that there should be no adverse impact on consumers as a result, the project will avoid unnecessary change and in turn cost.

Success Criteria

Delivery of a report that outlines how the regulatory framework will operate to support the commercial, billing, and settlement requirements that will be needed for the Hydrogen Village Trial and a solution that will be scalable for future project phases (Town/ City).

The report will include:

A final report outlining how the end-to-end solution will work
Production of a Design Requirements document (i.e. Business Rules) that will be required by the CDSP in order to amend central systems and inform the drafting of revised legal text (to be supported by Dentons)
The identification of the necessary amendments to industry codes e.g. UNC/REC/SEC; and other legislative implications GS(M)R etc that will be required
BEIS / Ofgem deliverables

Project Partners and External Funding

Wales and West Utilities
Cadent Gas
SGN
Xoserve – Decarbonisation fund

Potential for New Learning

In terms of learning a greater understanding of the Impacts of the changes on the regulatory and codes frameworks are anticipated. The outcome of the work will result in proposal for unc modifications / derogations along with potential settlement and billing solutions. These will be shared via existing industry mechanisms e.g. the joint office's standard distribution list. Internally updates will be provided via the energy futures stand-up meeting.

Scale of Project

This piece of work is exploring options to create a regulatory framework for future hydrogen projects. Based on a 4,2,1,1 basis (geographical split) the potential outcome and learning could be applied to projects nationally. Although initial analysis is heavily based around the Hydrogen Village, the learning will benefit all GDNs. This piece of work is endorsed by all networks at this stage of development, input into the framework will consider impacts to UNC, REC & SEC Codes, legislation, shippers, metering and billing and settlement arrangements common to all distribution networks.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL5 Pilot Scale

Geographical Area

Initial areas identified are Whitby (Cadent) & Redcar (NGN) with a view for this to be extended to town / city and future hydrogen projects moving forward nationally.

Revenue Allowed for the RIIO Settlement

No surplus to requirements in the RIIO settlement is anticipated

Indicative Total NIA Project Expenditure

Element Energy - £316,000

Legal Drafting Mods - £100,000

REC/SEC Changes - £30,000

Contingency - £50,000

Total - £496,000

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:

The Governments 10 point plan for a green industrial revolution included a milestone to support industry to begin a large village hydrogen heating trial by 2025. In December 2021, NGN submitted a detailed design study applications for funding under Ofgem's NZASP Re-opener. NGN was successful in receiving funding under the reopener to progress its detailed design study.

NGN's project at Redcar is the next phase of trials exploring the impact of moving to 100% hydrogen as an alternative to methane as a source for heat within the UK. HVT is intended to build upon learning gained from previous / ongoing trials, Hydeploy and H100.

HVT includes approximately 2000 sites within the Redcar community and is one of two village trials that Ofgem approved detail design studies earlier this year, the other being led by Cadent Gas.

As a part of this work there are several collaborative workstreams with multiple project benefits that are being progressed by the gas networks. It has been agreed by the senior management teams that the funding for these workstreams sits outside of the Village Trial and should be progressed via NIA funding as the learning is applicable across several industry projects and not just the village trials.

NGN is leading on the development of the Regulatory and commercial Frameworks supported by the other networks and Xoserve.

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

All participants in the trial will have gas appliances replaced and measures in place to ensure that are not financially impacted as a result of participating in the trial.

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)

N/A

Please provide a calculation of the expected benefits the Solution

N/A

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

Purpose of the trial is to demonstrate that solutions developed are scalable, Village trial will if NGN is successful in its submission April 2023 be followed by Town and City Trials prior to total system roll out.

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

Not applicable at this time, a decision for hyrdrogen for heat is not anticipated from government until 2026

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

Interim and final reports will be produced as an output from this project which will include :

Documented proposal on the UNC modifications required to support trial
Documented proposed on technical billing modifications undertaken
Development of Commercial Assurance Framework
Development of a Commercial Change Framework

These reports will be published via existing industry mechanisms shared via the Joint Office of Gas Transporters standard distribution lists.

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

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 HVT- Legislative and Regulatory Analysis project is one of several workstreams under HVT workstream and the GDN's (Cadent, SGN, NGN and WWU) have decided as a collective that NIA is the correct funding route. Each workstream has a specific focus and whilst there is interdependency specific scope / focus ensures duplication should not be an issue.

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

100% hydrogen has never been used as a source for heat in the Uk, as a result the existing regulatory and commercial frameworks make no consideration of such. Innovation within this project focuses on the reuse or reinvention of existing processes and regulatory frameworks to facilitate a transition to Hydrogen.

Relevant Foreground IPR

All IPR stays with GDN's and as such no change to exiting market arrangements, the project is focusing on no regrets changes and the use of existing processes / frameworks where possible in order to ensure that financial impacts on customers are kept to a minimum.

Data Access Details

Contact innovation@northerngasnetworks.co.uk for data access

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

This project if not bau and therefore not funded via bau activities. Funding for the HVT programme as whole was secured under Ofgem's NZASP Re-opener, Xoserve's involvement as CDSP is covered under its Decarbonisation Fund and will be reviewed via the annual business planning process.

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

This project is fundamental to the success of the Village Trial and future phases to facilitate total system transition to Hydrogen. Funding is required to facilitate the analysis of changes required to the existing legislative and regulatory frameworks and identify modifications / derogations needed to enable the transition of the gas network to hydrogen.

This project has been approved by a senior member of staff

☑ Yes