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 2022

Project Reference Number

NIA_NGN_420

Project Registration

Project Title

Visualising the opportunity for pipeline hydrogen for mobility applications

Project Reference Number

NIA_NGN_420

Project Licensee(s)

Northern Gas Networks

Project Start

May 2023

Project Duration

0 years and 8 months

Nominated Project Contact(s)

lkirkwood@northerngas.co.uk

Project Budget

£106,100.00

Summary

This project will model the hydrogen mobility and hydrogen gas grid networks with the key output being a dynamic visualisation tool which will support the co-development of the hydrogen gas grid and hydrogen heavy transport sectors. The model will compare the locations of existing and planned hydrogen gas network infrastructure and projected future hydrogen transport demand. The tool will allow users to visualise the likely hydrogen transport demands and hydrogen gas grid locations to identify high potential future sites for gas grid connected hydrogen refuelling stations.

Third Party Collaborators

Transport for the North

Environmental Resources Management (ERM)

Nominated Contact Email Address(es)

innovation@northerngas.co.uk

Problem Being Solved

Hydrogen is a vector in the UK's plan for meeting its decarbonisation targets and is widely expected to play a critical role in future decarbonised heating, industry, and transport sectors. As a gaseous fuel, pipeline distribution is the most cost-effective solution for bulk distribution of hydrogen in the developed market, with gas network operators faced with the challenge of delivering a hydrogen-ready grid to support the net-zero transition.

Whilst hydrogen for heating and industry has been the subject of significant strategic planning by gas network operators, with projects such as HyNet and the Hydrogen Village Trials, little attention has been afforded to investigating the role of the gas grid in supplying hydrogen transport demands. Consequently, collaboration in hydrogen station siting between gas network operators, transport

planners, and station installers has been very limited.

The heavy-duty transport sector is facing a serious decarbonisation challenge, the UK having failed to deliver any material reductions in heavy duty vehicle (HDV) emissions since 1990. Hydrogen is regarded as a strong contender to cost-effectively decarbonise heavy duty vehicles (HDVs) and meet UK climate targets and fossil fuel HDV sales bans in 2035 & 2040.

Although both the transport and gas sectors are struggling to deliver emissions reductions at the rate and scale required for system-level transformation, opportunities for collaboration to co-develop and accelerate decarbonisation are being missed.

Method(s)

This section should set out the Method or Methods that will be used in order to provide a Solution to the Problem. The type of Method should be identified where possible, eg technical or commercial.

For RIIO-2 projects, apart from projects involving specific novel commercial arrangement(s), this section should also include a Measurement Quality Statement and Data Quality Statement.

The method to solve this problem is split across three work packages which are outlined in detail below.

WP1: Hydogen Demand

Areeg and secure transport modes and data sets.

Develop 5-years incremental scenarios and sensitivities for demand uptake.

Generate update optimised station locations.

Refine fuel station capital and operating input assumptions and projections.

WP2: Conversion of gas grid

Create H2 Production hub assumptions.

Gather data on proposed conversion and new h2 pipeline infrastructure.

Identify sections which are suitable to hydrogen dispensing.

Optimise station suply methods to minimise system cost.

WP3: Visualising outputs

Hold stakeholder workshops to understand user needs

create a concept illustrating a shared understanding of the model's capabilitis.

build and debug the visualisation model

Demonstrate and train end users on the model.

WP1 Modelling Hydrogen transport demand

In the Future Role of Gas Project, Element Energy built a model that identified hydrogen demand from hydrogen heavy good vehicles and suggested station locations to meet that demand in 2050. The image below illustrates an output of this work. We propose to build on this modelling framework to add in additional land-based vehicle modes that are expected to demand significant volumes of hydrogen in a net zero world including, buses, coaches, refuse collection vehicles and trains. We will develop temporal snapshots of

how this demand emerges and use the modelling logic built from the Future Role of Gas Project which takes into account vehicle depots, common destinations (e.g. ports or warehouses) and routing data (major motorway data) to identify optimal regions (within a 3km radius) for hydrogen refuelling stations to serve this demand. This will take into account the nature of the duty cycles of vehicles e.g. back to base cases for city buses or motorway tramping for heavy trucks.

Figure 1 Visualisation of the HRS network for hydrogen trucks in 2050

WP2 Modelling the conversion of the gas grid to hydrogen

The Future Roll of Gas project established an agreed narrative with gas network operators for the conversion of the UK grid to hydrogen. See below for the narrative of gas grid conversion:

“From the early 2020s small sections of the gas grid are converted to 100% hydrogen to demonstrate the long-term feasibility of this approach. From 2023 hydrogen blending into the grid begins in small regions limited by production capacity.

From the late 2020s hydrogen begins to be blended at scale into larger areas of the gas network from large production sites in the Phase 1 regions to decarbonise heating and industry, although hydrogen blend percentages are still low at this point due to limited production capacity. Due to outstanding questions around the feasibility of deblending hydrogen, due to equipment footprint, ability to locate near transport refuelling sites and cost, for use in transport applications, this has not been factored into this analysis. As a result, early piped hydrogen is assumed only to supply domestic and industrial buildings for heat. At this time larger trial of 100% hydrogen networks are also expected in regions where production capacity and network architecture allow.

Between 2030 and 2035 the percentage of hydrogen blended in the major industrial cluster regions continues to increase and blends also start to be delivered to Phase 2 regions. Growing sections of the major industrial cluster regions convert to 100% hydrogen, allowing some new HRS to be fed directly from the grid.

Between 2035 and 2040, 100% hydrogen clusters in the industrial hub regions are connected up allowing whole industrial cluster regions to convert to 100% hydrogen. The blending levels in densely populated regions continues to increase and growing sections of the those regions convert to 100% hydrogen. This coincides with the development of the first very large HRS which can only be practically supplied through pipeline.

Between 2040 and 2045 most of the densely population regions have completed conversion to dispense 100% hydrogen with the final areas of the grid converted by 2050”

Figure 2 Visualisation of the major centres of demand for HGV hydrogen demand

Since the report, there has been an acceleration in ambition of the hydrogen conversion and the prospect of large volumes of hydrogen production is becoming increasing likely due to recent government targets for 2GW of hydrogen production and the £240 million Net Zero Hydrogen Production fund to support this. In addition, hydrogen deblending technology readiness level is rapidly improving (driven in party by Cadent Gas’s Hy4Transport project and National Grid’s SIF deblending project) and business case of hydrogen deblending and purification is becoming increasingly viable.

In this work package, we will use GIS shape files of the existing gas grid and identify sections of the gas grid which are high pressure and high volume enough to practically and economically supply deblended hydrogen (medium term) and pure hydrogen in future. In addition, we will use shape files from the newly emerging 100% hydrogen distribution projects including HyNet, East Coast Hydrogen and Project Union to develop snapshots through time of the regions of the gas grid which could economically supply hydrogen to transport customers.

WP3 Visualising the synergy between the gas grid and the hydrogen network

We will develop a tool to allow interested parties in the Northern Power House 11 region to visualise modelling results that are relevant to them. We will work with Northern Gas Networks and TfN to create a prioritised list of potential users for the model (e.g. GDNOs, Hydrogen Vehicle Operators, Hydrogen Station Builders, and Transport Authorities). Note that each additional user type adds complexity to the technical architecture and cost of the visualisation model. Therefore, we will hold workshops with the highest-priority users to understand the specific functionality that they would most value from the visualisation.

We will use these workshops to create a concept paper for the modelling visualisation tool which sets out what we will deliver within the budget that is agreed for the project. This will include information such as:

- Mock ups of how the user interface of the tool looks to test desired user interaction
- The data sets and vehicle types that will be included in the model
- User stories of what users want to do with the tool.
- Examples of questions uses will be able to answer

We will share this concept paper with TfN and Northern Gas Networks and organise a workshop that includes the modelling teams and project managers from TfN, NGN and EE (and any other key stakeholders) to discuss the suitability of the functionality of the model and confirm that the proposed modelling architecture is compatible with all companies' licenses and competences. This process will be iterative with features added, removed, and prioritised to ensure that the model can be built within the agreed-upon visualisation budget. We will begin building the tool based on the final agreed-upon scope for the visualisation. We will hold period catch-up calls with the TfN and Northern Gas Networks teams to present progress and receive feedback. Once the model is completed, we will organise a workshop with chosen partners to train them on how to effectively use the model and will remain available to fix any bugs which become clear during the early user testing. Note: Element Energy will retain the IP for the product to facilitate ongoing maintenance, debugging and support.

Scope

The project's geographic scope focuses predominantly on the Norther Powerhouse 11 regions of the UK.

There is a wide recognition that the gas networks need to convert to carrying hydrogen to avoid becoming redundant in a net zero world, costing taxpayers many billions in national infrastructure stranding costs. Gas networks are taking steps along this journey which opens up additional opportunities for revenue by retailing into the transport systems.

Economic benefits

Element Energy's cost-benefit analysis shows a clear economic benefit from supplying hydrogen via pipeline to suitable transport uses over ~500kgH2/day for ~50 heavy-duty vehicles. A 3km pipeline has the capacity to reduce the pump price of hydrogen by ~£0.3/H2kg compared to compressed gas tube trailer delivery at a cost of ~£5M for the pipeline. Over the course of the station's 15-year life, this will save ~£1.2M in fuel costs. At today's diesel price, this cost reduction could bring unsubsidised green hydrogen to cost parity with diesel on a per-kilometre basis.

Simple and conservative modelling has identified 70 sites stations in the North of England which could be conveniently connected to

the planned hydrogen gas grid network. If these stations are connected to the gas grid instead of being supplied by tube trailers, it could create ~£3.3 billion in added value to the NP11's gas network operators over the lifetime of the station network.

Environmental benefits

In addition to the environmental benefits achieved by converting the gas grid to hydrogen, hydrogen mobility has the capacity to drastically reduce emissions and air and noise pollution from heavy-duty transport. Hydrogen that is compliant with the clean hydrogen standard and supplied by pipeline to heavy-duty fuel cell transport applications would reduce the carbon emissions in heavy transport by ~98%. With the sale of diesel engines for heavy duty applications becoming illegal after 2035 hydrogen trucks can expect to capture a significant proportion of the 40,000 diesel truck sales by 2035 abating millions of tonnes of CO2 and driving significant improvement in local air and noise pollution.

Objective(s)

The key output for this project will be a simple visualisation tool for the Northern Powerhouse 11 region for the interface between hydrogen mobility and the natural gas grid networks.

Our major objectives for the tool are:

- Brings comfort to users of a cross-sectoral consensus.

- Something immediately practical for a range of high priority users in planning the net zero transition of fleets.

- Provides a robust evidence base with which to influence national Government/policy.

- Presents the best way forward in terms of capturing the wider clean growth opportunity for the North and its communities. We know that the NP11 organisation (representing the 11 Northern LEPs) has been working on an economic analysis and delivery plan for their Net Zero North Prospectus and have identified two relevant priority interventions: 'Shared hydrogen and transport and storage infrastructure' and 'Identifying supply chain gaps and opportunities across the North, for the production and use of hydrogen, and producing recommendations for greater co-ordination'. We can expect strong interest in, and support for, our work from the Northern LEPs.

- Forms a robust basis from which we can realise further work looking at integrated storage and supply consideration and demands from aviation.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

It is not anticipated at this stage that this research will impact consumers in vulnerable situations.

Success Criteria

Modelling success for will be measured by building a modelling tool that effectively visualises different hydrogen vehicle deployment scenarios and can calculate the optimum station locations and hydrogen production and delivery methods to minimise the hydrogen supply cost to vehicles in each scenario. This will be validated through a presentation of the modelling findings to a large group of stakeholders at a webinar in the final weeks of the project.

Project Partners and External Funding

Element Energy

Address: Suite 1 Bishop Bateman Court, Cambridge

Telephone: +44 (0)203 813 3908

Contact name: William Darby

Email: William.darby@element-energy.co.uk

http://www.element-energy.co.uk/

Element Energy introduction

Element is a world-leading low-carbon energy consultancy with more than 20 years of experience in the hydrogen for mobility space. At any given time, Element has a team of ~40 consultants working full time on hydrogen and will be able to leverage this expertise in the coordination, management and development of this project.

Elements relevant capabilities

Element Energy has a detailed knowledge of hydrogen in both the transport and the gas network systems which leaves it uniquely placed to develop a visualisation tool for this project. Element has developed an industry leading modelling and visualisation team which will deliver the visualisation tool.

Core roles supporting this project

Ben Madden

Director

Ben is a director in Element Energy's London office Ben brings two particular competencies to the team. He has many years' experience in low carbon vehicle rollout, having been involved in strategy and project development in hydrogen and other vehicles since 2001. He has also led Element's work on many vehicle deployment projects, working with Government and industry stakeholders to develop projects which have seen 1000s of fuel cell vehicles deployed. Ben will act as overall project director

Mike Dolman

Associate Director

Mike co-leads the company's UK-based hydrogen and fuel cells team. In recent years Mike's focus has been on the low carbon transport sector, in particular developing strategies for deploying fuel cell electric vehicles and assessing business cases for hydrogen fuel supplies. He has a strong track record in technology demonstration project initiation, consortium management, writing funding applications, and supporting technology developers with commercialisation of novel products in this sector.

Tim Howgego

Senior Consultant

Tim Howgego is the team's Geographic Information Systems and web visualisation specialist. Recent projects include user interface design and programming for Transport for the North's online map-based Electric Vehicle charging point model visualisation, and the development of a user-friendly interface for the Humber Industrial Cluster Plan decarbonisation model. Previous work includes the creation of an interactive mapping platform for visualising and analysing public transport networks. Tim's web development expertise spans usability and accessible design, front and backend programming, and cloud-based hosting.

Will Darby

Principal Consultant

Will is a Principal Consultant at Element Energy. Since joining Element Energy in 2018, Will has been involved in coordinating numerous multi-stakeholder hydrogen vehicle deployment and modelling groups and has been instrumental in the inception and development of the UK Aggregated Hydrogen Freight Consortium.

Project management

Mike Dolman will oversee the project with Will Darby being the day to day consultant responsible for project delivery. Will will manage two consultants who will be resourced onto the project when it becomes clear that the project is successful.

Element Energy

2nd Floor, 4 Piccadilly Place, Manchester, M1 3BN

www.transportforthenorth.com

TfN introduction

TfN is the Sub-national Transport Body (STB) covering the geographical remit of the project. We are currently developing an in-house freight analysis eco-system including a freight data repository, a freight meta-model and a Local Freight Tool, along with sharing and

training capability for local authorities and other stakeholders. We are the only organisation in the UK that has successfully installed the Great Britain Freight Model into our in-house model and trained internal staff to be able to use it. Our models aim to improve the robustness of base year data and analysis and provide flexibility in deriving the forecasting demand with fast run times and at much lower costs. We are committed to applying these models and their outputs to this project.
TRLs relevant capabilities
Further build and augmentation of northern hydrogen refuelling location model:

TfN holds an in-house analytical framework which includes a bespoke rail modelling capability and a Local Freight Tool to support in-house freight analysis and interpolation of freight forecasting demand for a range of policy dimensions.

TfN is currently developing an in-house freight analysis eco-system system including a freight data repository, a freight meta-model and a Local Freight Tool, along with a sharing and training capability for local authorities and other stakeholders to enable them to access and use the data and tools. TfN is the only organisation in the UK that has successfully installed the Great Britain Freight Model in-house and trained our internal staff to use it. TfN's models aim to improve robustness of base year data and analysis and provide flexibility in deriving the forecasting demand with fast run times and at much lower cost.

In addition, TfN has been developing projections to show the evolution of additional likely warehousing locations at various snapshots into the future as part of its Warehousing Accessibility study. TfN is also able to provide its Future Freight Scenarios, derived from its peer reviewed and award winning Future Travel Scenarios for the purpose of scenario testing and ensuring the robustness of the Athena Tool.

Facilitation of stakeholder engagement

As the project progresses, there will be a need to: 1) disseminate findings of the refuelling locations model out to key stakeholders, 2) engage with a wider breadth of stakeholders in relation to the selected refuelling location proposed as the subject of the Beta stage funding.

TfN holds an existing rich network of cross-sectoral contacts. As an STB, TfN has an existing formal relationship with all 20 local transport authorities in the North, as well as National Highways and Great British Rail. Through TfN, the governance structures needed to support engagement with key stakeholders are already in place.
Core roles supporting this project
· Peter Cole, Principal Environmental and Sustainability Officer – Peter developed and is responsible for the implementation of TfN's Transport Decarbonisation Strategy. In relation to the project, Peter will be providing access to, and management of, key stakeholder contacts. Peter will also ensure that the project remains focussed on satisfying the needs and objectives of its partners (including the 20 northern Local Transport Authorities and 11 Local Enterprise Partnerships), especially in relation to the final refuelling location modelling tool/network.

· Wei Cui, Principal Technical Management and Assurance Officer - Wei leads the freight modelling requirements and development, as part of TfN's Analytical Framework to deliver an evidence base for freight assessment in the North. Wei will be a data analyst working on the project, responsible for all traffic and trip input data from TfN, into the project modelling. Wei also manages TfN's Warehousing Accessibility study and again will be responsible for any of these data inputs into the model.

Potential for New Learning

The research seeks to unlock a set of information which through the development of a modelling tool enables the marketplace to better identify refuelling locations for transport networks across the north. The approach can then be rendered for wider use across UK to give a normalised approach to transport refuelling infrastructure.

To gain traction for the work the NP11 Local enterprise partnerships will be engaged so the outcomes of the work can play directly into their future transport strategies. A webinar approach is being considered to identify the most practical way to share the learning for this research which will sit alongside sessions at energy and transport conferences.

Scale of Project

This work seeks to combine outputs from previous research, alongside the latest thinking to develop a model that developers, transport operators and networks can utilise to understand what capacity is required and where and how best to deliver the right solution in those locations. As such this is a software and research-based project and not seeking to undertake capital build.

Given the need for more accelerated action on climate change and for solutions that support heavier fleet operations, it is felt the scope of this work, underpinned by in-kind support from TfN, and Element Energy, is of a suitable scope. Were this to be reduced the

outcomes and viability of the model would be limited and therefore of reduced value to the various engaged stakeholders that wish to see this development.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL6 Large Scale

Geographical Area

The analysis will be limited to the Northern Powerhouse 11 geographic area.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

External Costs- £96,100 Internal Costs- £10,000 Total NIA Project Expenditure- £106,100 The total project cost for the proposed project is: £123,100 based on additional in-kind support from Transport for the North.

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:

As the market gains increasing confidence in the utilisation of hydrogen as a fuel across a wider number of sectors, the networks need to understand what new loads may impact the gas grid and where. A potential high-value and high-volume new demand for the energy networks is hydrogen's use in the heavy-duty transport. This work to better understand the requirements and location for transport across the NP11 region will support the energy systems transition as it carry's increasing volumes of hydrogen in coming decades. This work then directly aligns to the energy systems transition to low carbon gas transport and how we accelerate solutions that are resilient and practical, and which support the decarbonisation of our industries and home heating.

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)

N/A

Please provide a calculation of the expected benefits the Solution

This is a research-based project. The work will:

1. Create an improved view in five-year tranches of future load growth for hydrogen refuelling across our network
2. Support development of more accurate capacity modelling and plans and investment
3. Shape the future investments and developments of the NP11 in line with NGN future plans.
4. Support the wider supply chain by providing additional strategic information on future refuelling locations, scale and so on.

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

Once this approach has been established and proven there would be no obvious reason the same methodology could not be applied to the wider GB and expand the model capability to support improved understanding of hydrogen refuelling locations and needs.

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

The costs of rolling out the method across the GB is unknown at this time as the project will only go to TRL6, so further development would be needed to reach TRL 9.. Assuming the model functionality was static then the primary element of expansion would be to

gather the input data from broader spread of GB

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 information generated and methodology / model developed could be applied to a wider footprint than the NP11 to provide networks with further insight and understand in more depth where capacity for Hydrogen refuelling may be required on their infrastructure.

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

Please demonstrate how the learning from the project can be successfully disseminated to Network Licensees and other interested parties.

NGN, Element Energy and TfN will undertake briefing sessions and conference events to promote the project, its outputs and learning. Access to the tool and it's outputs can be discussed with Element Energy to provide bespoke outputs for other interested parties.

Please describe how many potential constraints or costs caused, or resulting from the imposed IPR arrangements.<

The project has been conceived and scoped to comply with the standard NIA IPR arrangements. Therefore, there are no additional costs and constraints that are expected to affect the project

Please justify why the proposed IPR arrangements provide value for money for customers.

The current IPR arrangements allow for Northern Gas to use the model and its outputs to effectively plan for gas network development

and upgrades to maximise the value that the gas grid can provide to new hydrogen mobility customers. Similarly, Transport for the North's access to the model and it's outputs and will support local authorities to effectively plan for their fleet conversion to zero emission and to realise any value that could be provided by the gas grid.

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.

While there are numerous tools which link electricity networks with transport demand for electricity charge points this is the first modelling tool that we are aware of that will link a future hydrogen gas network with a hydrogen transport network.

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

Low carbon hydrogen production has recently emerged as mass market proposition in the previous 5-years with several Gigawatts of projects expected to be commissioned across Europe before 2025. Despite numerous announcements regarding European hydrogen backbones and injection of hydrogen into the natural gas grids, no projects have taken a cross-sectoral approach to the implications that this could have on the decarbonised transport infrastructure network. This will support Northern Gas Networks in developing an innovative new customer base in hydrogen mobility.

Relevant Foreground IPR

The project and the resultant outcomes/deliverables will conform to the default treatment of IPR as set out under the agreed NIA Governance (where the default requirements address two types of IPR: Background IPR and Foreground IPR)

Data Access Details

For all data access requests, please follow the guidance set out in Northern Gas Networks Innovation Data Sharing Policy. https://www.northerngasnetworks.co.uk/ngn-you/the-future/our-funding/

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

The cross-sectoral nature of the project with a focus on both mobility and the gas grid makes this beyond the scope of Northern Gas Networks business as usual activities. With an increasing acknowledgement regarding the key role hydrogen will play in the decarbonisation of the UK economy, and its role in transport and heat, it is clear further investigation on the deployment of refuelling and co-location of existing gas assets needs to be undertaken to leverage future consumer and commercial benefits to the transport sector, which in parallel interface with gas network infrastructure, diversifying our demand portfolio and providing greater security of supply to the sector.

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 highly innovative and future-facing that supports Northern Gas Networks in supporting a market that has not yet emerged and still has a number of risks to overcome to develop into a mass market proposition.

This project has been approved by a senior member of staff

☑ Yes