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 2021

### Project Reference Number

NIA2_SGN0005

## Project Registration

### Project Title

Data Sharing Protocols

### Project Reference Number

NIA2_SGN0005

### Project Licensee(s)

SGN

### Project Start

October 2021

### Project Duration

1 year and 3 months

### Nominated Project Contact(s)

Paul Rose

### Project Budget

£20,000.00

### Summary

Energy network development requires a move towards a whole system approach - driven by data, innovation, and collaboration. Improved coordination between the power and gas sector will ensure that low carbon energy is available to be delivered to the consumer safely, securely, reliably, and efficiently.
Creating a common set of structures for sharing information between local networks will be instrumental to creating an enduring whole systems approach during GD2.

This work will be focussed on the operational planning level across GDN, DNO and others, to develop a clear understanding of how both gas and electricity networks develop and respond to operational plans (covering a 24–72-hour period) and will identify the data which would be usefully shared to improve system operation.

### Third Party Collaborators

Progressive Energy Limited

### Nominated Contact Email Address(es)

sgn.innovation@sgn.co.uk

### Problem Being Solved

With an everchanging energy sector and the drive to net zero the Electricity and Gas networks need to co-operate more now than ever before. Ensuring that consumers have a choice in their energy to meet their needs, whilst maintaining secure resilience in supply across both Gas and Electricity networks is key. There is now an opportunity for significant improvement in coordination and planning between Gas Distribution and Electricity Distribution networks over RIIO-2, specifically with respect to the growth in distributed gas generation capacity and large exit connection planning.
Energy network development requires a move towards a whole system approach - driven by data, innovation, and collaboration.

Improved coordination between the power and gas sector will ensure that low carbon energy is available to be delivered to the consumer safely, securely, reliably, and efficiently.
Whole energy system planning can deliver short- and long-term benefits to the GB energy consumer. It seeks to develop and exploit open data between energy systems and share progress with decarbonisation options allowing development of key interfaces and governance to advance dynamic whole systems planning. Creating a common set of structures for sharing information between local networks will be instrumental to creating an enduring whole systems approach during GD2.
Establishing information exchange mechanisms with ESOs and DNO's to determine likely operational windows for gas-fired generation connected to the Gas Distribution network such that gas network dynamic effects can be modelled is essential

## Method(s)

This work will be focussed on the operational planning level across GDN, DNO and others, to develop a clear understanding of how both gas and electricity networks develop and respond to operational plans (covering a 24–72-hour period) and will identify the data which would be usefully shared to improve system operation

## Scope

The scope of the project will be to engage with DNO's, GDN's and ESO's to establish the desire to create data sharing protocols that involve real time data.
This data is expected to include but not limited to;

- Time variant data, including:
  - Demand forecasts, by geographic location, including sensitivities.
  - Supply availabilities, by geographic location, including sensitivities.
  - Gas storage availability (linepack, other).
  - Planned outages.
- Time invariant data, including:
  - System layout.
  - System capacities.
  - Storage capacities.
- Market Indicators:
  - Capacity market.
  - EV uptake.
  - Heat pump installations.

## Objective(s)

The project will determine if a Data Sharing Protocol is feasible and offer tangible benefits to Networks and energy consumers. The initial phase of this project will be stage gated prior to progression of any future phases.

## Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

The project will identify the key data required to ensure that both Gas and Electric networks can react to the transition of the energy Market thus ensuring that all customer groups have options when choosing net zero energy. For those within the vulnerable group they will continue to have the ability to ensure the most reliable and cost effective source of energy is available to them, whist ensuring that the UK's energy supply is secure and able to accommodate demand during peak winter months.

## Success Criteria

The success criteria is detailed as below

1. Comprehensive list of key strategic data required by both Gas and Electric networks to assist in strategic planning.
2. Identification of systems that will require integration, access, etc.
3. Detailed tangible benefits to Customers.
4. Full Scope to progress project to Phase 2.

## Project Partners and External Funding

This project will be delivered by Progressive Energy with Stakeholder input from GDN's, DNO's and ESO's.

No external funding is required.

## Potential for New Learning

The Learning from this project will define the scope and outputs required for the larger Phase 2 project.
This will ensure that all aspects of what data, and system upgrades are required to ensure full real time data sharing between energy sectors.

## Scale of Project

The project is to understand the feasibility and scope for possible future phases that take this into a live scenario. This project would be considered a small scale project under Phase 1.

## Technology Readiness at Start

TRL2 Invention and Research

## Technology Readiness at End

TRL3 Proof of Concept

## Geographical Area

The project will be using the SGN footprint of Southern England and Scotland but the basic principles can be extend to GB wide.

## Revenue Allowed for the RIIO Settlement

Not applicable

## Indicative Total NIA Project Expenditure

£20,000

# 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 ability for the energy sector to understand the impact of the energy transition toward net zero will inform both Gas and Electricity networks of changing demand forecasts whilst ensuring security of supply to the end user.
The demand profile that both sectors have modelled on in the past is ever changing with the introduction of renewable and flex generation. This is only going to have more uncertainty moving forward as customers energy needs change. This project will allow real time information to be used in all aspects of design, network growth and supply demand and will assist in security of supply.

## 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 (research/feasiblity project).

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

The outputs from this project can be replicated across Electricity and Gas networks UK wide as the scope of the project details the data and systems required following the stakeholder input sessions which are part of the project.

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

Not applicable (research/feasiblity project).

## 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 learning from this project and its outputs will allow other Gas and Electric transporters to apply the outputs to their own network should they wish to have these protocols in place with their opposite Energy partner.
It will detail what systems need changing to interact, what the key data that needs to be shared and the scope for taking this into a live project.

### 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 potential outcomes of this project are applicable across GDN's and DNO's All the Network Licensees are aiming to reduce carbon emissions whilst still maintaining security of supply. The project will provide a robust framework that GDN's and DNO's can utilise during planning stage and with real time data will be able to ensure they are providing the optimum solution for the end user without risk to supply.

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

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

## Additional Governance And Document Upload

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

The project will allow both DNO's and GDN's to fully understand in real time the implications on their networks as they transition to Net Zero. As the energy requirements change this project will be vital to ensure that whole system planning is making sure that the end user is getting the optimum solution and the networks have the ability to meet the demands required.

### Relevant Foreground IPR

Not applicable

## Data Access Details

Data for this project and all other projects funded under the Network Innovation Allowance (NIA), Network Innovation Competition (NIC) or the new Strategic Innovation Fund (SIF) can be found or requested in a number of ways:

- A request for information via the Smarter Networks Portal at https://smarter.energynetworks.org, to contact select a project and click 'Contact Lead Network'.
- 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 developing a formal data sharing protocol between Gas and Electricity Energy transporters to support the changing energy demands of the UK for the move towards Net Zero whilst still ensuring security of supply . 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 development of a Data Sharing Protocol is vital with the ever changing energy requirements of the UK as we move to Net Zero. The project will address all considerations and requirements to allow for the changing demand profiles and delivery to end users, thus ensuring security of supply.

## This project has been approved by a senior member of staff

☑ Yes