SGN Digital Strategy Action Plan

SGN
Your gas. Our network.

December 2023

>

Our digital vision

At SGN our digital and technology goals are to ensure that our customers and our network are safer, greener and more efficient because of what we do.

We are both excited and passionate about driving the digital agenda and playing a part in tackling the climate emergency that we all face, whilst enabling operational efficiency and better customer value.

Our digital transformation framework provides the fundamental building blocks required to deliver large scale digital change as summarised to the right.

Digital strategy
Unlocking digital value and building future roadmaps

Stakeholder requirements
Consumers, Regulators, Investor requirements

Operating model
Redefining our operating model for digital business

Digital transformation
Sustainable capability development aligned to our business and stakeholder expectations

Driving innovations
Realising the art-of-the possible

Developing capabilites
Developing capabilites needed for the digital business

Cyber security
Protecting and exploiting our digital business

Delivering solutions
Using new technologies to build, deploy and manage

Our stakeholders

We have a series of well-established feedback forums involving a broad cross-section of stakeholder groups which provide us with insights relating to our business plans and priorities for RIIO-GD2.
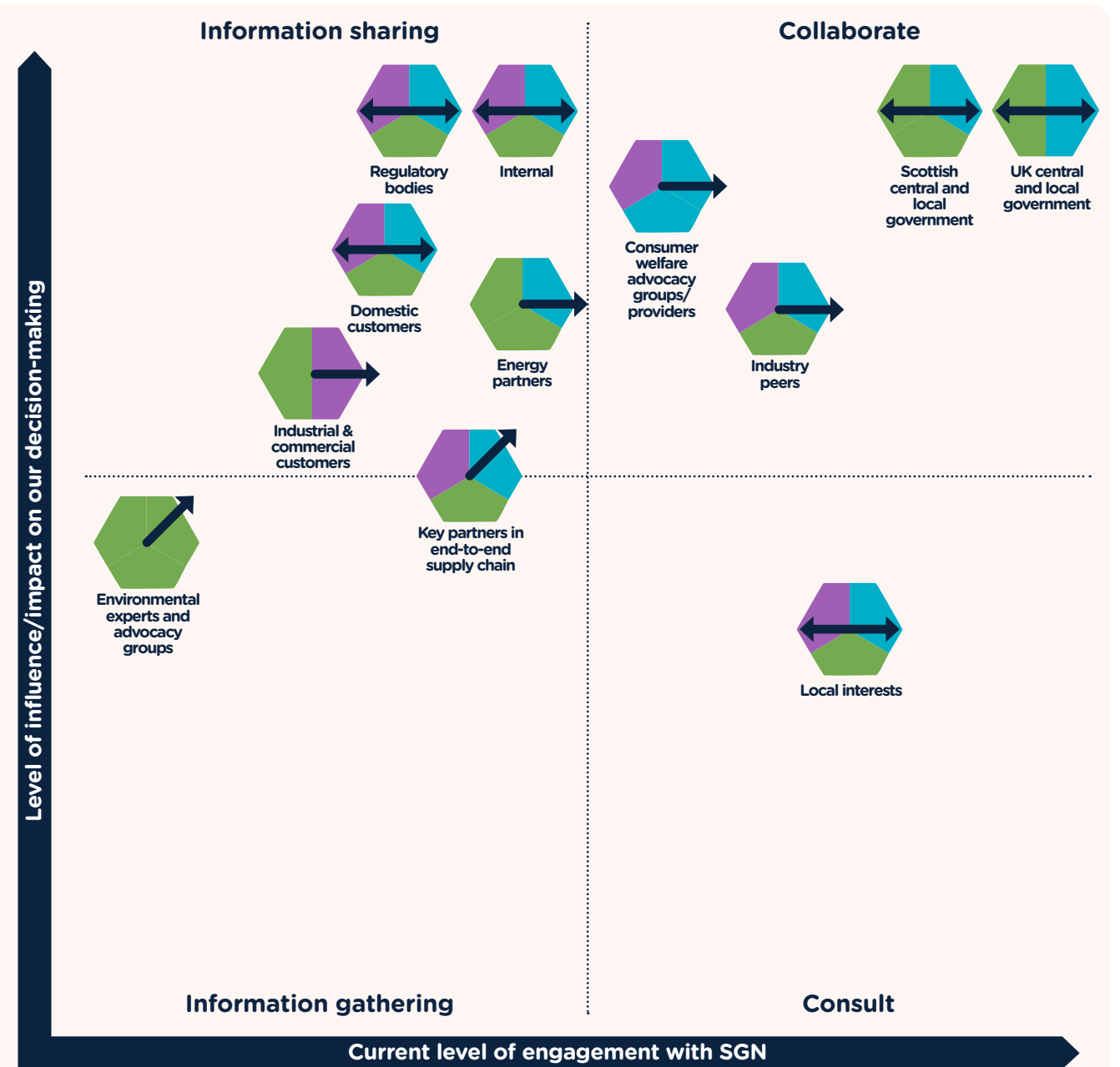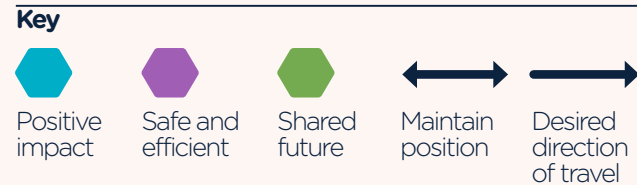
Our stakeholders

The chart shows how we systematically map our stakeholders according to their influence and impact on our decision-making in relation to our business plan commitments.

We use our stakeholder mapping to assess the status of our engagement, to understand where we need to increase appropriate engagement and to identify and close any gaps.

Key

Positive impact

Safe and efficient

Shared future

Maintain position

Desired direction of travel

Information sharing

Regulatory bodies

Internal

Domestic customers

Energy partners

Industrial & commercial customers

Key partners in end-to-end supply chain

Environmental experts and advocacy groups

Collaborate

Consumer welfare advocacy groups/ providers

Scottish central and local government

UK central and local government

Industry peers

Local interests

Information gathering

Consult

Level of influence/impact on our decision-making

Current level of engagement with SGN

Our roadmap

Our technology roadmap underpins our vision and strategy and includes capability development in connectivity, exploring and exploiting further Industrial Internet of Things (IIoT), robotics and artificial/augmented/ virtual reality.

Our innovative and collaborative projects highlight the numerous opportunities and benefits associated with digitalisation within the energy networks sector.
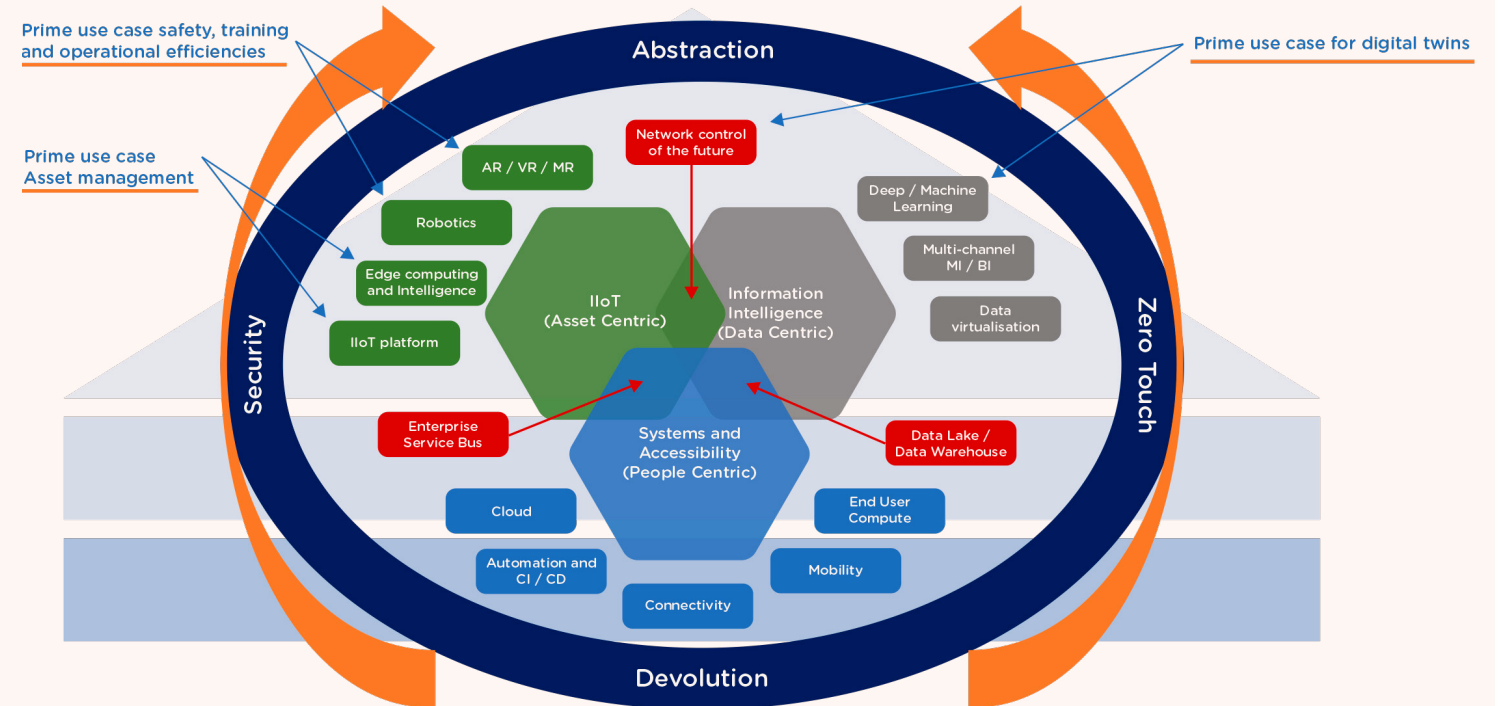
Our digital commitments

As part of our digitalisation strategy, we have made seven commitments as part of our delivery path:

01
We will continue to seek and gather stakeholder feedback on digitalisation requirements and progress the development of these ideas in partnership with our industry peers.

02
We will deliver a digital strategy that provides a direct support to delivering a safe and efficient service, creating a positive impact on the society we serve and delivers a shared future. We will revisit our strategy every two years to ensure these principles are adhered to and continue to align with stakeholder priorities.

03
We will continue to explore and develop new operating models with other organisations, such as the GLA, and the data working group. In 2020/21, we will lead the workstream for the GDN data triage services.

04
We will continue to improve our digital culture by developing digital talent, educating and training our staff in digital skills and ways of working. We will monitor this through our digital readiness and digital skill assessments.

05
We will continuously improve our cyber security capability. We will develop our digital security skills, train our people on cyber risk management and demonstrate this through compliance with our security accreditations and regular assessments.

06
We will continue to deliver new digital solutions and demonstrate active progress against Ofgem's nine principles for digitalisation.

07
We will develop, deliver and demonstrate digital innovation through our approved energy futures programme of work.

Our digital and data roadmap
At a glance

A full project update can be found by clicking on each project title

Key

Icon	Category
Purple	Customer vulnerability and experience
Yellow	Data digitalisation capability development
Teal	Environment and net zero
Green	Operational efficiency
Red	Open data
Grey	Safety

Status descriptions

Pipeline
Initiative has not started and is awaiting appropriate resources and approvals to be scheduled to start.

In progress
Initiative is underway.

Delivery
Initiative has completed in line with its objectives and benefits will be enabled.

Project title	June 2023	December 2023
ADaPT	In progress	In progress
Automated Utility Service Mark-out System (AUSMOS)	In progress	In progress
Biomethane Improved Access Rollout	In progress	In progress
Centralised entry for green gas	Pipeline	Pipeline
Connections application process	In progress	In progress
Cyber security programme RIIO-GD2	In progress	In progress
Data management programme	In progress	In progress
DEFGRID	In progress	In progress
Digital Platform for Leakage Analysis	In progress	In progress
Distribution network information modelling (DNIM)	In progress	In progress
FYLD Innovation Partnership	In progress	In progress
Gas System of the Future Digital Twin	In progress	Delivery
H100 Fife	In progress	In progress
Intelligent Gas Grid – Beta	In progress	In progress
Leakage Management in the Energy System Transition	In progress	Delivery

Project title	June 2023	December 2023
Local authority data sharing	In progress	Delivery
Local authority whole systems projects	Pipeline	Pipeline
Modernisation Programme	Pipeline	Pipeline
National energy system map – PoC	In progress	Delivery
Online planner	Pipeline	Pipeline
Phoenix IOT demonstrator	In progress	Delivery
Predictive Safety Interventions – Beta	In progress	In progress
Priority Services Register (PSR) Data integration and PSR Data Share	In progress	In progress
Real-time networks Ph2	Pipeline	Pipeline
Remote pressure control and management	In progress	In progress
Satellite infrastructure modelling (SIM)	In progress	In progress
Stakeholder and Data User Engagement Programme	In progress	In progress
Track my engineer	In progress	In progress
Velocity Design with Hydrogen	In progress	In progress

Our digital
vision

Our
stakeholders

Our
roadmap

Our digital
commitments

**Our digital and
data roadmap**

ADaPT

Status

In Progress

**Project
start date**

April
2021

**Anticipated
project end date**

March
2026

Key

⬡ **Data digitalisation
capability
development**

Overview

SGN has invested in establishing its analytics capability through recruitment and development of skilled and talented individuals. Last year we launched our new enterprise analytics data platform (ADaPT).

This capability is being continuously developed throughout GD2.

June 2023 update

We have been continuing work to ingest and transform a number of data sources into our ADaPT data lake platform.

In addition, we have created visualisations and dashboards for stakeholders at all levels of the business to enable them to make decisions in a more effective manner.

Benefits

Building this capability is a fundamental enabler to wider digitalisation and unlocking the benefits to stakeholder and organisations external to SGN.

December 2023 update

SGN continues to invest in its analytics capability to provide key insights to management and staff on performance.

SGN is also planning on expanding the development of the ADaPT platform in support of external data sharing requests to improve time to market and accessibility for our external Data Consumers.

Automated Utility Service Mark-out System (AUSMOS)

Status

In Progress

Project start date

July 2021

Anticipated project end date

October 2024

Key

- 🟣 Customer vulnerability and experience
- 🔵 Environment and net zero
- 🟢 Operational efficiency
- ⚫ Safety

Overview

Following the development of RRES (Robotic Roadworks and Excavation System) and it's below ground sensor package which uses AI and ML to interpret the data, the AUSMOS project represents an opportunity to transfer the learning from those technologies and package them into a semi-autonomous robotic unit. This unit would scan the area of interest, interpret the information and mark-out utility types and locations.

June 2023 update

Rigorous field trials have commenced. Eight field trials on various environments have been completed. The data gathered is being compared with actual measurements collected on site, and the algorithm is being adjusted as the system is learning.

Trials will continue over the next three months where the system will be assessed against British Standard PAS 128 to ensure the system is fit for purpose before commercialising the final design.

Benefits

Benefits include reduction in impact to the public and highway users as well as a reduction in injuries and fatalities due to asset strikes. System looks to prevent damage to utility networks whilst reducing size of excavation and carbon footprint. With the near real-time data processing and visualization of the results we aim to reduce the repair and associated costs from asset strikes and ensure immediate and accurate recording of assets.

December 2023 update

With modifications to the system being completed, further trials will be carried out to assess the solution against British Standard PAS 128.

Biomethane Improved Access Rollout

Status

In Progress

Project start date

April 2022

Anticipated project end date

March 2026

Key

● Environment and net zero

Overview

The aim of the Biomethane Improved Access Rollout project is to increase the amount of 'green' biomethane gas within SGN's networks. There are currently requirements that impose high costs on biomethane producers linked to propanation of the biomethane to meet GDN / Thermal Energy Regulation requirements. There are also prevailing constraints in relation to the injection of biomethane volumes into the network which SGN are looking to address by implementing a smarter pressure control regime. This programme is looking at several ways to alleviate these issues which include a localised CV billing zone project, blending of unpropanated or reduced propanated biomethane into the network and smart control of the network pressure to positively bias in favour of the entry of biomethane gas. The programme will consist of 3 projects in Scotland and 7 projects in SGN's Southern network.

Benefits

Once implemented, the project will provide benefits by reducing volumes of propane required to be comingled with biomethane for entry into SGN's network. These benefits materialise with decreased fossil fuel CO_2 emissions associated with the gas burnt at customer's premises. The overall societal benefit will include increased volumes of green gas in the total system derived from GB gas production. The project will also enhance the financial viability of biomethane production by reducing costs associated with blending propane into the biomethane produced. Smart Network Control projects will also provide the potential for increased biomethane volumes to be injected into the network by managing network pressures. The billing solution developed with Xoserve may also provide a basis for other GDNs with similar biomethane sites and network configurations to utilise this innovative billing solution.

June 2023 update

Six biomethane sites in Scotland and four in Southern have been identified for propane management solutions. A commercial tender for conceptual designs has been instigated, with returns expected May 2023.

Early engagement with technology providers has taken place to develop a tender scope document covering conceptual designs for smart control of biomethane in the network, including, control of network pressures and enhancing biomethane flow rates.

December 2023 update

Propane Management: The propane management solution project has completed blending studies for ten sites and the conceptual designs for those sites are currently in progress with the deliverable expected at the end of Q4 2023 and SGN will then assess the next steps. Propane Management (local billing zone) A project has been outlined with a biomethane plant owner and three industrial customers to deliver requirements under Thermal Energy Regulations for localised billing using the collaboratively developed billing solution. Smart Network Control: SGN are continuing to develop solutions for smart pressure control to enhance biomethane flow rates into the network and also analysing existing pressure settings' processes to establish where pressure settings can be made more effective.

Centralised entry for green gas

Status

Pipeline

Project start date

Q1 2023

Anticipated project end date

Q4 2023

Overview

Feasibility studies for all four mainland SIUs as test beds for blends of hydrogen up to 100%. Opportunity to monitor real network operation with real customers with collection of data aiding further hydrogen projects.

June 2023 update

The feasibility study has been paused awaiting DESNZ policy decision on gas blending.

Benefits

Looking at the most economical way to decarbonise the gas network currently serving the SIU towns.

December 2023 update

The feasibility study has been paused awaiting DESNZ policy decision on gas blending.

Key

⬡ Customer vulnerability and experience

⬡ Environment and net zero

Connections application process

Status

In Progress

Project start date

January 2021

Anticipated project end date

Q1 2024

Key

🟣 Customer vulnerability and experience

Overview

Taking on board feedback from our customers we are updating the online application process for Connections Customers.

Benefits

We are user testing the improvements with real customers to gather meaningful feedback to improve the customer journey.

Customer and stakeholder feedback has indicated this is a priority consideration.

June 2023 update

We have continued to monitor customer applications since the website improvements in July 22 and can now see 90% of our online connections customers complete their application first time in comparison to 78% previously. We have also seen the satisfaction question around 'Ease of application' included in our customer survey has increase by 0.22, which clearly demonstrates the benefit in the development work implemented.

Further development work is underway, focused on the content and layout designs on our website to improve where, when and how we provide customer information. User testing has been carried out to make sure the development work is aligned to customer needs.

December 2023 update

In early October 2023, we published the first set of new Connections pages using the new templates and tools developed earlier this year. The content for these pages were developed and approved by multiple Stakeholders in June 2023.

We have identified five stages of the connection process and next steps are to provide additional web content to support customers throughout the remaining four stages. Those pages will be written, built, and published over the coming months in a phased approach. In addition, we will continuously monitor and measure the improvements already implemented.

Cyber security programme RIIO-GD2

Status

In Progress

Project start date

April 2021

Anticipated project end date

March 2026

Key

🔵 Environment and net zero

⬤ Safety

Overview

As part of SGN's, and our industry's, ongoing commitment to appropriately manage risk to the energy network from cyber-attacks, our cyber programme will continue throughout RIIO-GD2 with the delivery of a number of projects.

June 2023 update

The Cyber Security programme continues to deliver projects in line with agreed priorities with Ofgem.

Benefits

Underpins SGN's vision statement of 'Keeping our customers safe and warm' by leading the way in energy delivery and managing the cyber security risks associated with operating critical national infrastructure.

December 2023 update

SGN's Cyber Security on-going programme is progressing delivery of Ofgem requirements.

Data management programme

Status

In Progress

Project start date

April 2022

Anticipated project end date

March 2026

Key

⬡ Data digitalisation capability development

Overview

SGN has invested in Talend data management platform to ensure we continue to be compliant with Data Best Practice Guidelines and can also support evolving requirements for our energy data through appropriate application of data governance and management process frameworks.

This programme will be ongoing throughout GD2 as we continue to mature our capabilities in this area (people, process, data & technology).

June 2023 update

SGN's Enterprise Data Management team are continuing to build foundational data governance and management capabilities, aligning them with Data Best Practice Guidelines.

Talend Data Management platform is enabling the management of our enterprise data as we continue to consume more data sources.

Investment also continues in our people and processes as we mature this capability.

Benefits

With the increased requirements around energy data to enable net zero solutions and insights, it is imperative that SGN has robust data governance and management framework in place to ensure its data is utilised safely and appropriately, in appropriate state and its value understood in context of the outcomes it needs to deliver.

December 2023 update

There is ongoing work in GD2 to invest and develop data management capability in line with data best practice guidelines.

DEFGRID

Status

In Progress

Project start date

April 2022

Anticipated project end date

April 2025

Key

● Customer vulnerability and experience

● Data digitalisation capability development

● Operational efficiency

Overview

This project seeks to deliver an Industrial Internet of Things (IIoT) demonstrator in the utility industry, which sees the use of Digitally Secure by Design (DSbD) technologies to deliver ground-breaking security solutions within SGN.

To address challenges from increasingly sophisticated cyber threats on distributed and connected CNI assets, this project will extend the compile target of the existing secure-by-design Phoenix software platform to the DSbD solution.

Benefits

Our solution will be considerably more cost effective than upgrade paths and would increase site resilience through fast, effective and secure (re)deployment and management of control at the edge.

This would benefit utility customers through fewer interruptions and fewer customer minutes lost.

June 2023 update

Development work on the demonstrator is progressing.

December 2023 update

Project is progressing according to the project plan with development of the Phoenix platform.

Demonstration of this platform on physical hardware is in the control test environment.

Next steps look to develop physical hardware ready for field trials.

Digital Platform for Leakage Analysis

Status

In Progress

Project start date

September 2023

Anticipated project end date

March 2026

Key

🟠 **Data digitalisation capability development**

Overview

The Digital Platform for Leakage Analytics (DPLA) project aims to develop and demonstrate a functional MVP for how data, analytics and models can be used to identify and locate gas leaks in the gas distribution network.

Here is a link about the Strategic Innovation Fund (SIF).

June 2023 update

New Initiative.

Benefits

By combining upgraded modelling capabilities, the project will deliver the next generation of user driven digital processes accelerating progress in methane leakage detection, as well as unlock opportunities across hydrogen leakage detection. The DPLA will directly improve data monitoring and insights improving efficiency and resilience of the networks.

December 2023 update

The Beta phase has kicked off with work commenced in developing the models, analytics, and data development. Physical sensor trials are expected to start in 2024 as the project develops into data-driven leakage modelling, unlocking proactive leak detection capabilities combined with testing the application of novel gas sensor technologies. Therefore, creating opportunities to reduce the reliance on and cost of in-field specialised sensors.

Distribution network information modelling (DNIM)

Status

In Progress

Project start date

April 2022

Anticipated project end date

April 2024

Key

- 🟣 Customer vulnerability and experience
- 🟡 Data digitalisation capability development
- 🔵 Environment and net zero
- 🟢 Operational efficiency

Overview

The DNIM project seeks to address this legacy asset records issue by creating technologies that enables automated, periodic and cost-effective internal mapping and feature analysis of the gas distribution network from all inlets to all outlets. The system will utilise an in-line tetherless robot which uses AI to accurately determine the location, makeup and features of gas distribution pipelines and associated buried assets. This creates a building information modelling (BIM) based digital twin that can be appended with live network associated data.

June 2023 update

With the completion of the feasibility study, the DNIM project is continuing to develop early-stage prototypes.

Work is continuing to design, build, shop test and field trial a novel autonomous robotic system.

Benefits

Benefits to our stakeholders include accurately identifying the location of existing buried assets to reduce numerous practical problems including overruns in cost and time, as well as introducing safety risks for employees and contractors and subsequently additional disruption to road users and members of the public, particularly in busy urban areas like London.

December 2023 update

The project is progressing to its next phase with the aim to design, build, shop test and field trial a novel autonomous robotic system known as DNIM that can traverse within SGN's natural gas infrastructure and accurately map the network. Work continues in the development of the project and is currently seeking funding for the next stage of the prototype development.

FYLD Innovation Partnership

Status

In Progress

Project start date

February 2022

Anticipated project end date

February 2025

Key

🟡 Data digitalisation capability development

🟢 Operational efficiency

⬤ Safety

Overview

SGN have agreed a three year innovation partnership with technology platform FYLD. This allows SGN to develop further features enabling data-driven decisions in real-time. This digital and mobile platform uses speech and image recognition as well as AI and ML technologies.

June 2023 update

Hand Arm Vibration Syndrome (HAVS) feature released end of May 2023. Daily vehicle inspections to allow real-time intervention by managers and safety professionals to follow in July 2023. Enhancement of both features to continue throughout Summer 2023.

Benefits

This leads to enhanced safety management, productivity and quality assurance. FYLD was designed and developed by SGN in partnership with a digital venture company and is available on the open market for other customers.

December 2023 update

Further enhancements to the HAVS feature were released in August 2023 allowing near real-time monitoring of employee exposure to vibration in the workplace. Vehicle check feature was launched September 2023 and currently being monitored to realise driver and vehicle safety benefits. Exploration of generative AI feature to support engineer decision-making has begun in the field and expected to be launched in 2024.

Gas System of the Future Digital Twin

Status

Delivery

Project start date

March 2022

Anticipated project end date

Dependent on project approval

Key

🟡 **Data digitalisation capability development**

🔵 **Environment and net zero**

Overview

This is a collaborative SIF project that SGN is leading on. The alpha phase will strive to ensure a working green hydrogen digital twin, combined with analytical tools and machine learning, will provide a platform that changes the traditional way of how we look at the analysis of asset condition and performance.

June 2023 update

Application for SIF Beta Phase approval is in progress; outcome from decision by UKRI will determine next steps.

Benefits

It will enable a new generation of advanced predictive analytics and provide a virtual environment where process control and operational solutions are designed and tested before being applied to the live plant, reducing risk when upscaling electrolysis plant design for example.

December 2023 update

Submission for Beta phase was not approved – June 2023.

H100 Fife

Status

In Progress

Project start date

April 2020

Anticipated project end date

March 2027

Key

🔵 **Environment and net zero**

Overview

H100 Fife is a Network Innovation Competition (NIC) winner and will incorporate methods and technologies to manage, run and operate a hydrogen network in Fife – a world first. The project will explore, develop and demonstrate opportunities to utilise network data in ways that are not undertaken today.

Here is a link to the H100 Fife project website.

Benefits

Switching carbon-emitting natural gas for hydrogen, which doesn't produce carbon when it burns, is one of the ways that we can keep homes and businesses warm and safe while making ground in the fight against the climate emergency.

June 2023 update

Hydrogen demonstration facility is currently under construction which will be complete in September 2023.

The hydrogen distribution network design has been finalised.

364 customers have registered for the project (as of 17/05/23), exceeding Ofgem's minimum participation requirement of 270 registrations. We are on track to have the first customer on hydrogen in September 2024.

December 2023 update

Main works contractors to build and commission the hydrogen production & storage site by 2024 have been appointed.

The hydrogen distribution network construction commenced, and we have laid 2km of distribution pipeline in the network area.

The demonstration facility is finalising construction completion, and we are working on opening to customers in early 2024.

There are currently over 300 live participants who are customers and have registered to take part and are eligible after completing a survey. There has been continuous customer engagement throughout the reporting period, the most recent being the H100 Fife open event which took place 25th October.

Intelligent Gas Grid – Beta

Status

In Progress

Project start date

October 2023

Anticipated project end date

July 2026

Key

🟠 **Data digitalisation capability development**

Overview

The project vision is to autonomously and intelligently monitor and control networks, both in terms of pressure management and operational planning &maintenance, using data-driven algorithms and decision-making, and to support network digitalisation.

Here is a link about the Strategic Innovation Fund (SIF).

June 2023 update

New initiative.

Benefits

The result of the project will lower costs to consumers, lower methane emissions, increase the resilience of the network and support progress to net zero by reducing networks' carbon footprints. Commercial products developed will have a global market.

December 2023 update

Iterative development and field trial validation of the intelligent control solution for methane leakage has commenced. Formal product approval of the minimum viable product solution is ongoing with the plan to trial four initial networks.

Leakage Management in the Energy System Transition

Status

Delivery

Project start date

July 2022

Anticipated project end date

August 2023

Key

● Environment and net zero

Overview

Project proposes to undertake a sensitivity analysis of the LRMM, review natural gas leakage rates of above ground installations (AGIs), review SGN's cathodic protection (CP) records, review the CISBOT programme and its impact and assess assumptions around asset records of cast iron and spun iron. Elements to be factored into a CBA to determine cost-effective next steps, maximising the reduction of leakage and emissions. Project proposes to assess application of LRMM to the energy transition system and future of hydrogen gas network.

June 2023 update

Draft report under review. Final report outputs with project codes expected by June 2026.

Benefits

This project has the potential to identify areas of improvement in the way leakage is estimated, reflecting improvements in the network. This project has the potential reduce methane leakage, providing financial and environmental benefits. This project will also consider how the leakage of hydrogen from future converted gas networks can be accurately monitored, allowing it to be reduced and minimised.

December 2023 update

Project is completed- August 2023

This assessment was considered in relation to natural gas leakage, with the following conclusions:
- Shrinkage and Leakage Model (SLM) sensitivity factors – only negligible improvements possible.
- Assumptions surrounding above ground installations (overall leakage and operational venting leakage) – significant reduction likely in both cases, with a possible fivefold reduction possible in venting assumption post validation.
- A 92.8% reduction in leakage rate for steel assets with cathodic protection can be reclassified in the SLM.
- 50.9% reduction in leakage rates for CISBOT (joint treatment) treated assets can be reclassified in the SLM.
- The management of hydrogen leakage in the gas network of the future using the SLM: It was expected that indirect emissions from leakage of hydrogen will result in a reduction of around 79% at a minimum compared to the direct emissions of natural gas leakage today.

Local authority data sharing

Status

Delivery

Project start date

Ongoing

Anticipated project end date

Ongoing

Key

- ⬡ Customer vulnerability and experience
- ⬡ Environment and net zero
- ⬡ Operational efficiency
- ⬡ Open data
- ⬡ Safety

Overview

SGN has long been sharing data on its assets, infrastructure planning and proposed works with local authority and government organisations within our operating footprint in order to support their planning processes and cross-infrastructure coordination efforts.

Benefits

By sharing this information, SGN is aiding a number of areas: the improved coordination between utility companies to reduce customer impact from their work. Local authority development plans in understanding infrastructure availability and needs.

Helping to streamline the green energy planning process by engaging with local authorities and green developers, giving them sight of the existing gas infrastructure.

Customer and stakeholder feedback has indicated this is a priority consideration.

June 2023 update

We are continuing to share our GIS data with Local Authorities in our footprint on a quarterly basis.

As we continue our pathway to open up energy data, we have been actively engaging stakeholders across a wide range of sectors and have facilitated over 30 requests for data.

December 2023 update

This is an ongoing Business as Usual activity which SGN will continue to engage on and support.

Local authority whole systems projects

Status

Pipeline

Project start date

Regional studies have various start dates

Anticipated project end date

Regional studies will have various end dates

Key

🔷 Environment and net zero

Overview

This feasibility study recognises the need for regional studies to provide opportunity in local government/ authority areas. Data collection on a local scale will be used to evaluate the options of transitioning from natural gas to hydrogen. Local demand data, building efficiency and other data sets will be needed.

Benefits

Feasibility study to evidence potential net zero pathway to support the heat policy decision in 2026. This provides the blueprint evidence case to provide a potential energy pathway for gas in the form of hydrogen.

June 2023 update

Isle of Wight, Capital Hydrogen, Edinburgh regional study now complete. Outstanding regional studies include Hydrogen Vision for Tayside and Angus, Scotland and H2 Sussex due for conclusion and awaiting final reports.

December 2023 update

The H2 Sussex study has been completed and a closure report with findings & conclusions will be shared early 2024.

Hydrogen Vision for Tayside and Angus, Scotland has been completed and a report will be published on SGN's website by end of December 2023.

Modernisation Programme

Status

Pipeline

Project start date

Dependent on project approval

Anticipated project end date

Dependent on project approval

Key

🟡 **Data digitalisation capability development**

🟢 **Operational efficiency**

Overview

Under the SGN-wide theme of Modernisation', we are holistically re-defining our core business processes and the technology that enables them. This will lead to a fundamental review of our technology platforms, data structures, and the technologies that integrate them and enable our people.

June 2023 update

New initiative.

Benefits

This is an exciting opportunity to revisit the foundational elements of our IT estate, which will support the rebuilding of our current manual processes as modern, digital and automated processes.

December 2023 update

This initiative is going through SGN's corporate governance process.

National energy system map – PoC

Status

Delivery

Project start date

June 2023
June 2021

Anticipated project end date

June 2023

Key

🔴 Open data

Overview

This is a proof-of-concept initiative to develop a national, geographical representation of both electricity and gas networks. SGN is working proactively with our energy peers to identify 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.

June 2023 update

Phase 2 draft report has been submitted by PNDC for proof reading and approval.

Benefits

There are regional-based representations of this data. This is the first representation of a UK-wide map of the energy networks. This work will be focused 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.

December 2023 update

It has been agreed the project will be suspended in view of other industry activities.

Online planner

Status

Pipeline

Project start date

August 2022

Anticipated project end date

Dependent on project approval

Key

⬢ Customer vulnerability and experience

Overview

This would investigate options to provide an online calendar for customers to schedule the date of their connections job.

June 2023 update

The business case produced which this initiative aligns to was paused and moved under our business modernisation programme. It will make up part of a wider business plan being produced in Autumn 2023.

Benefits

Would provide customers the opportunity to interact with our core planning system at a time suitable to them in line with growing customer expectations.

December 2023 update

Project has been paused and moved to our business modernisation programme to make up part of a wider business plan produced in Autumn 2023.

Our digital
vision

Our
stakeholders

Our
roadmap

Our digital
commitments

Our digital and
data roadmap

Phoenix IOT demonstrator

Status

Delivery

Project start date

November 2021

Anticipated project end date

October 2023

Key

🟡 Data digitalisation capability development

🟢 Operational efficiency

⚫ Safety

Overview

This project looks to address these risks by demonstrating an IOT (Internet of Things) solution that allows SGN access to their real-time asset data in a cost-effective manner, whilst building the correct level of security and resilience into CNI (Critical National Infrastructure). This data would comprise of SGN process, infrastructure, and security data and will be provided with the correct level of security and resilience, befitting UK CNI networks.

This would create a pathway to delivering the grand ambition of "a self-monitored intelligent network connecting in from anywhere in the world" and enabling the use cases though the use of data analytics, interactive data visualisation, machine learning and other smart technologies.

Benefits

This platform will deliver a safe, robust and cyber-resilient solution and will demonstrate the following operational capabilities; Inherently secure real-time sensor to cloud connectivity for remote operation and bidirectional data exchange.

Inherently secure connected process automation and control with remote update and management.

Through the enablement of secure-by-design operational capabilities, reduction in manual intervention and improvement in process optimisation delivering energy efficiency.

June 2023 update

After the successful development of the Phoenix IoT proof of concept, field trials have now commenced. The results of the trails are being gathered and evaluated.

Results will determine if the system is appropriate to be fully operationalised and developed for up-scaling and rolled out across the SGN network estate.

December 2023 update

After the successful conclusion of the proof of concept phase, Phoenix IOT will now be delivered under our IT delivery programme.

Predictive Safety Interventions – Beta

Status

In Progress

Project start date

October 2023

Anticipated project end date

January 2025

Key

🟠 **Data digitalisation capability development**

Overview

The project aims to create a predictive safety model that can predict onsite incidents before they happen and power an intervention to prevent them occurring. With this AI powered personalised intervention pushed directly into the hands of field teams and their remote managers at the point of starting work, and dynamically doing so as the workday progresses. This will enable the near- automation of sharing of learning from previous safety indicator events, including near misses and injuries, directly to the front-line on high-risk activities.

Here is a link about the Strategic Innovation Fund (SIF).

June 2023 update

New initiative.

Benefits

Successful delivery of this project will see a market-leading AI model to This will deliver a reduction in fatal and non-fatal injuries in the sector and will reduce the cost of operating energy networks from eliminating the associated cost of injuring and killing our workforce.

December 2023 update

The project has smoothly transitioned into the Beta phase, where work is focusing on reviewing and analysing the feedback and results from the initial stages. In parallel, the project team are engaging with both internal and external stakeholders to gather data to bring additional insights hat will help refine our approach, ensuring alignment with business objectives and stakeholder expectations.

Priority Services Register (PSR) Data integration and PSR Data Share

Status

In Progress

Key

● Customer vulnerability and experience

Project start date

Q1 2023

Anticipated project end date

Q4 2024

Overview

A part of RIIO-2 licence condition, all GDNs are required to treat customers fairly, have the skills to identify and support vulnerable customers and deliver specific services to customers on the gas suppliers' Priority Services Register.

As a GDN we're also assessed on the CSAT we provide PSR customers as part of our reputational ODI. Over recent years there has been a shift away from individual PSR lists across the utility sectors and a move towards open data share. This move has been supported by Ofgem and Ofwat. At the moment to support registration we have data sharing agreements with the regional DNOs to ensure that during incidents we can support PSR customers not currently on the gas suppliers PSR list to fill gaps in data. SGN are on the working groups to improve the data quality and address issues in data sharing.

Benefits

PSR Customer Satisfaction, as our operational and customer teams have access to up-to-date customer information during all workstream activity and will be able to prioritise the allocation of support for our Vulnerable Customers.

Data security – as the PSR data will be on SGN's systems and will not be emailed or exchanged between organisations.

June 2023 update

New initiative.

December 2023 update

There is a commitment to look at a Universal PSR that would be wider than utilities.

This is at a very early stage of discovery and a cross industry working group will be formed to take this forward.

Real-time networks Ph2

Status

Pipeline

Project start date

April 2021

Anticipated project end date

Dependent on project approval

Key

🟡 **Data digitalisation capability development**

🔵 **Environment and net zero**

Overview

This project is looking at making our distribution network 'smart' by applying weather, gas flow, gas quality and demand sensors across the Medway region of our distribution network.

June 2023 update

The project is being reviewed in line with current organisational priorities.

Benefits

Evidence potential net zero pathway to support heat policy decision in 2026. Our stakeholders have prioritised the energy system transition to net zero and whole energy systems.

December 2023 update

Remains a proposal only. Discussions continue between GDN's and DNV regarding potential shared project.

Remote pressure control and management

Status

In Progress

Project start date

April 2023

Anticipated project end date

March 2024

Key

⬡ Environment and net zero

Overview

Delivering the ability to remotely adjust gas pressures via connected pressure management devices.

June 2023 update

Training has been completed for the majority of SGN operatives and it is expected that a significant number of sites will be commissioned within the 2023/24 financial year.

SGN has taken delivery of 50 systems, with the equipment successfully installed and commissioned on six sites in our Southern network. A further 85 systems will be delivered by the end of July 2023.

Benefits

Optimising gas network pressures to be as required by demand at any given time of the day and across the calendar year.

Financial benefit to customers by reducing SGN's Shrinkage costs.

Security of Supply benefit to customers as the system reacts to periods of high demand by increasing system pressures.

Societal benefit to society by reducing system pressures at periods of low demand and thereby reducing overall system Shrinkage.

December 2023 update

The rollout of the pressure management equipment continues, with a total of 40 systems commissioned to date. As can be expected with such a new to the market innovative system, there have been delays to the project related to long order lead times and policy approvals for equipment upgrades, but these have now largely been addressed and it is still expected to complete installs on a significant proportion of the target sites by the end of 2023/24. Whilst waiting on system deliveries, SGN have been preparing the sites, which will facilitate a rapid installation rate when the equipment has been received.

All equipment is scheduled to be delivered to SGNs depots by January 2024, allowing all target networks to be planned in.

Satellite infrastructure modelling (SIM)

Status

In Progress

Project start date

April 2022

Anticipated project end date

April 2024

Key

🔵 Environment and net zero

🟢 Operational efficiency

Overview

For safety reasons, SGN undertakes multiple and frequent surveys of its pipeline assets by employing helicopters to cover the length and breadth of our network. This initiative is utilising existing satellite networks to take high-resolution images of our pipeline assets which can then be analysed.

June 2023 update

Trials have commenced where the technology is demonstrating consistent performance in monitoring our pipeline corridors. The utilization of Synthetic Aperture Radar (SAR) and multispectral (optical) satellites is proving to be a game-changer with the capture of high-quality data regardless of the time of day or weather conditions.

As the trials continue, we are eager to continue monitoring the performance of the satellite technology, with the hope of identifying further efficiencies and improvements to our pipeline monitoring process.

Benefits

This approach will enable operational efficiencies through the more efficient and effective utilisation of satellite surveys. The digitalisation of the outputs from these types of surveys will enable more innovative use of the data collected.

December 2023 update

The trial is progressing smoothly, with Orbital Eye's CoSMiC-EYE technology demonstrating consistent performance in monitoring our pipeline corridors. In these first two months, we have focused on attending all Orbital Eye sightings to verify the data, boost our confidence in the system, and train our machine learning model for improved filtration throughout the rest of the project.

CoSMiC-EYE has reported 76 Third Party Interferences (TPIs), contrasted with HeliAir's 31. This difference could be attributed to the increased frequency of monitoring.

Monitoring will continue to evaluate the performance of the CoSMiC-EYE technology, with the hope of identifying further efficiencies and improvements to our pipeline monitoring process.

Stakeholder and Data User Engagement Programme

Status

In Progress

Project start date

Q1 2023

Anticipated project end date

Q4 2024

Key

🟣 Customer vulnerability and experience

🟡 Data digitalisation capability development

Overview

SGN delivers an annual stakeholder engagement plan to ensure its products and services are developed with understanding of our stakeholder needs now and into the future.

This includes our data and digitalisation products and services.

June 2023 update

New initiative.

Benefits

Products and services are aligned and continue to be improved/designed for our Stakeholder needs.

December 2023 update

This is carried out under Business As Usual activities for SGN Data Management plans.

Track my engineer

Status

In Progress

Project start date

April 2022

Anticipated project end date

Q2 2024

Key

● Customer vulnerability and experience

● Data digitalisation capability development

Overview

Allows customers to track the progress of an engineer visit to complete certain planned work types.

Benefits

This avoids the customer having to contact SGN to gain a status update on when the engineer is likely to arrive to complete work. It is a convenient solution for customers and allows them to better plan their day around a SGN appointment.

Customer and stakeholder feedback has indicated this is a priority consideration.

June 2023 update

We were able to extend this trial out to include all regions over both networks by Dec 2022. This coincided with one of the busiest operational winters we have experienced, and this initiative helped keep customers informed that we had their job booked on the system and provided regular updates until an engineer was able to attend.

We have one final step agreed to extend this messaging service to all emergency jobs. Due to strategic priorities, this final element has been paused until Autumn 2023.

December 2023 update

The aim of this final stage is to deliver SMS messages to the remaining emergency customer jobs, such as gas emergencies along with a dashboard to allow the business to review real time performance from our operational colleagues.

Delivery timescales will be early 2024.

Benefits will mainly be visible through Customer Satisfaction performance and reduction in customer enquiries as we will be proactively keeping them informed about our progress.

Velocity Design with Hydrogen

Status

In Progress

Project start date

March 2022

Anticipated project end date

Dependent on project approval

Key

🔶 Data digitalisation capability development

Overview

This is a collaborative SIF project that SGN is leading on. The gas velocity constraint(s) for hydrogen, applied at the design stage, need to be identified. The constraint(s) determined will impact directly onto the levels of capital investment required in the transition of the system to accommodate blended and 100% hydrogen.

Here is a link about the Strategic Innovation Fund (SIF).

June 2023 update

Alpha stage has been successfully completed. Proposal for SIF Beta has been submitted and recently conducted interviews with assessment panel. Currently awaiting approval from Ofgem.

If approved, the project aims to conduct large scale physical testing to assess the velocity model developed in earlier alpha phase. At the end of Beta, it is planned for IGEM to publish updated standards in relation to allowable velocity limits which will inform the heat policy decisionmakers and support energy transition to hydrogen.

Benefits

To demonstrate how the current gas networks can intelligently and efficiently transition to provide low carbon heating.

December 2023 update

Project has been approved and progressed to Beta phase.

![SGN logo - Your gas. Our network.]

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