WALES & WEST UTILITIES

Delivering Innovation

2025-26

WALES&WEST UTILITIES

Welcome

At Wales & West Utilities, we take pride in delivering a safe and reliable energy supply to more than 7.5 million customers across Wales and the south-west of England. While we will never lose focus on our core responsibilities, we do not stand still: innovation helps explore technologies and approaches which could benefit the customers of tomorrow.

2026 marks a big shift for us as an organisation as we enter a new “price control” period, our five-year regulatory settlement which sets our aims and activities. Crucially, our values stay the same, and we are building on strong foundations to deliver an ambitious and forward-looking programme of innovation. Our Business Plan was developed and shaped through extensive stakeholder engagement and recognised for its focus on innovation, with an allowance of £18.5m of Network Innovation Allowance (NIA) funding across RIIO-3. With this funding we will continue to work with innovators across the energy sector to develop projects which could benefit the energy system transition and vulnerable customers.

Our Innovation Strategy sets out a clear roadmap for how we will explore, test and deploy innovative solutions to meet the challenges of the energy transition. We are focused on delivering a balanced portfolio of projects that support network resilience, enable decarbonisation, and provide tangible value for consumers.

We continue our commitment in RIIO-3 to the Strategic Innovation Fund (SIF), as in RIIO-2. We will play an active role in the new Innovation Delivery Groups, helping to shape and respond to SIF Challenges over the next five years. With funding administered by UKRI on behalf of Ofgem, this programme will support a coordinated approach to tackling shared industry challenges, such as reducing connection times and improving network efficiency.

Our support for green gases remains strong. We are already working on several biomethane related innovations, and our flagship SIF Beta stage NextGen electrolysis is continuing. As policy and regulation develops over the coming years, for example around biomethane support, hydrogen blending and wider uses of hydrogen, we will maintain a flexible and adaptable approach to our portfolio.

While we recognise that the nature of innovation means not all projects will succeed, delivering value for consumers is critical. By focusing on solutions that are scalable, cost-effective and aligned with stakeholder needs, we aim to develop an innovation portfolio which allows our learning to be translated into real-world benefits for the environment and the communities we serve.

– Graham Edwards, CEO

Contents

Introduction to innovation

Within this report you will find case studies highlighting outcomes and benefits, a page dedicated to showing how the work we do is connected, detailing preceding projects and next steps. We've also included a focus on innovation deployment activity across RIIO-2 with a summary of the key learnings and value generated for consumers.

This regulatory year has seen us continue to keep momentum on our innovation portfolio, spending £6.4m across both NIA and SIF allowances. April saw the start of the new RIIO-3 price control period for gas networks which is the culmination of our business planning activity over the last few years.

2026 has also seen the gas networks publish an updated gas strategy document outlining strategic areas of interest for projects over the next couple of years, which sits neatly alongside our business plan and the new Ofgem SIF Challenges.

Gas Strategy

There has been a slight change of focus for regulatory funded projects in RIIO-3 with the removal of hydrogen related innovation activity, although introducing more green gasses like biomethane into the network remains a focus, in addition to reducing emissions and leakage from the network to support the journey to net zero.

Although hydrogen related innovation activity will not be included in RIIO-3, there is the ability for networks to access funding pending a positive decision on hydrogen blending into the gas network, or use of hydrogen for heat. Hydrogen still remains a strategic objective for networks and we're keen to leverage other non-regulatory funding like the Hydrogen Transport Business Model (HTBM) to progress projects in this area like our HyLine Hydrogen Pipeline Programme.

SIF Challenges

1. Industrial and business connection acceleration
2. Faster build and maintenance
3. Instant use domestic energy devices
4. Eliminating energy outages
5. Decentralised system balancing

WHAT OUR PARTNERS SAY

"We were pleased to work with WWU across three successful projects last year. WWU supported us through the NIA process, and we're looking forward to picking up future projects."

Cenex

Calling all innovators

Supporting new innovators and innovation is a key area for us. Our calendar of events covers strategic thinking, idea generation, project updates and learning dissemination.

If you're an innovator who's new to us or worked with us before, however large or small, we're keen to hear your ideas and to support you in understanding our priority challenges. We're here to steer you safely through our funding availability and processes, and, although we can't guarantee that every idea will be funded, we do always give feedback if an idea is not taken forward.

We work collaboratively with the other gas and electricity distribution and transmission networks, and the National Energy System Operator.

We share all our projects with each other, sharing learning and often working on progressing innovation projects together.

Innovators are at the heart of what we do

Never miss a beat – get the latest updates and upcoming tender notices direct to your inbox every month, plus exclusive updates on all things innovation. Sign up **here**.

To get a taste of what we have been up to you can read about our project portfolio **here** and what upcoming events you can find us at **here**. For a deeper dive on projects you can view case studies **here**.

The Innovation team at Wales & West Utilities are here to support with navigating the funding streams and the governance that facilitates our projects. If you send us your idea we will match to the appropriate funding, but you can learn more about these specific conditions **here** and **here**.

- Learn about gas industry challenges relating to SIF funding **here**.
- Explore **The Future Energy Networks Innovation Process (FENIP)** to understand the end-to-end framework for reporting and collaborating on Ofgem-funded innovation projects in Great Britain.
- Truly innovative? Check for duplication of your idea **here**.

Across RIIO-2 we worked with a total of 89 suppliers

19 micro, **21** small, **11** medium,
33 large and **5** public bodies /universities*

WHAT OUR PARTNERS SAY

"Wales & West Utilities' Innovation Roadmap gives suppliers like Steer Energy genuine forward visibility of upcoming opportunities – knowing what's coming and when, allows us to plan effectively, think creatively about how we can help, and bring well-considered proposals to the table. It benefits everyone involved."

Steer Energy

Not sure where to start?

We are here to help. From inception to delivery, we are with you every step of the way.

innovation@wwutiliites.co.uk

*Micro: **0-9 employees** | Small: **10-49 employees** | Medium: **5-249 employees** | Large: **250+ employees**

Innovating in RIIO-2

With 2026 bringing the start of the new RIIO-3 price control, we've broken down our innovation stats into this regulatory year and also summarised our activity across RIIO-2 (excluding projects carried over into 2026-27 that started before the end of the price control).

In RIIO-2 we deployed various innovations, ranging from a tool to allow all networks to assess the impacts of projects on consumers in vulnerable situations, a toolkit to allow local authorities to understand better the energy systems transition and even equipment that allows more biomethane into the network. To find out more about our deployment and benefits click **here**.

We also utilise all the learnings from our projects, particularly those at early technical readiness levels (TRL), which enables us to build on previous projects. The benefit of early TRL work is highlighted in the **deployment page** and also the **race to net zero page**.

Across the whole of this price control we have:

- Invested **£15m** NIA across RIIO-2
- Kicked off more than **120** NIA projects
- Collaborated in **45%** of the projects

For this regulatory reporting year, we have:

- Invested **£6.4m** of NIA funding
- and **£1.8m** of SIF funding
- Kicked off more than **35** NIA projects
- Collaborated in more than **40%** of the projects
- Delivered early development project work across **85%** of our portfolio (TRL 2-5)

This year in innovation

It's been a busy 12 months and over the following pages you'll find the exciting project work we have undertaken, including several in-depth case studies and projects we deployed. You can also read about how we have been engaging with stakeholders across our network.

WHAT OUR PARTNERS SAY

We were delighted when our tender bid to work with WWU proved successful. Part of navigating the process was laying out the intellectual property governance – WWU did this clearly, ensuring all parties were comfortable, whilst adhering to NIA governance.

Business Modelling Associates

This year in innovation

Appendix: Current and future roadmap

Race to net zero

Project builder

This page shows how project learning builds and links into other projects, showcasing the value of early technical readiness projects in developing a robust portfolio.

Understanding Future Energy Loads from Data Centres

NIA

This study indicated that it is technically and systematically viable to supply power to a data centre from the gas network.

HyDrive

NIA

This study on road vehicles concluded that hydrogen could be a useful solution to decarbonise heavy vehicles and it is was worth considering rail transport separately.

H2 Rail

NIA

The project findings concluded there is strong potential for hydrogen rail in the Wales and Western region, particularly on non-electrified routes where other options are less viable.

Project GRID

NIA

GRID will take the learnings from all three projects to analyse solutions and provide understanding of how biomethane can be used as an alternative to support not only data centres but also other high energy demands, such as the transport sector.

NextGen Electrolysis – Wastewater to Green Hydrogen Discovery

SIF

The Discovery phase of the NextGen Electrolysis project confirmed that the production of hydrogen using wastewater is possible and economically beneficial in many cases.

NextGen Electrolysis – Wastewater to Green Hydrogen Alpha

SIF

Alpha phase focussed on proof of concept of the NextGen technology conducting electrolysis from impure water, and demonstrating the total removal of rare metals and membranes from the design.

NextGen Electrolysis – Wastewater to Green Hydrogen Beta

SIF

Beta phase will demonstrate the NextGen technology at two sites, as case studies for 100% hydrogen use and hydrogen blending.

Lessons Learnt from the Past

NIA

The Lessons Learnt from the Past project looked at the conversion of homes and premises in the UK from town gas to natural gas between 1967 and 1977.

Lessons Learnt – Phase 2

NIA

The second phase of the project focused on commercial and industrial customers in more depth, by examining previous network decommissions and the impact of moving to alternative any sources.

Safe Settlement

NIA

Dissemination on the Lessons Learnt Phase 2 project led to the prompt from the Department of Energy Security and Net Zero (DESNZ) to explore the impact of subsidence as a result of network decommissioning.

Determining Future Energy Demand of B&R Teams with Full On-Board Power

NIA

This project undertook an assessment of WWU's on-board power capability, with a view to informing our future power needs for alternative fuels.

Total Cost of Operation

NIA

The outputs of the On-Board Power project fed into this project to create a Total Cost of Operation (TCO) model to inform future investment strategies in relation to the decarbonisation of WWU's commercial vehicle fleet.

Total cost of operation

Deployment

The TCO tool will be implemented as a business-as-usual asset for informing procurement and transport decision-making for fleet decarbonisation.

Case study:
Commercial Vehicle Fleet

Commercial vehicle fleet – development of Total Cost of Operation model

This project seeks to deliver a Total Cost of Operation (TCO) model to support a cost-effective and low-risk transition of our commercial vehicle fleet to zero tailpipe emission technologies. Completion of this project gives us a model that addresses our specific requirements, meaning plans and investment decisions can be grounded in real-world technology assessments and our own operational fleet data.

Project breakdown

HOW: Gap identified; tendered for partner

WHO: Wales & West Utilities

PROJECT PARTNER: Frazer-Nash

FUNDING MECHANISM: Network Innovation Allowance

Need

Decarbonisation of UK transport requires companies to change their commercial vehicle fleets to battery electric vehicles (BEVs) or alternatives. Our fleet has a more challenging and varied range of duties than most others, including vehicles required to provide on-site power and able to meet our duty to respond quickly to escapes. Alongside this, our recharging capacity is more limited due to our geography and the demographic make-up of our engineering colleagues, which means BEVs may not be the most efficient option.

We also need to be mindful of cost to assure value for money for our customers. A future-proof Total Cost of Operation (TCO) model that takes our operational needs into account and is able to assess the costs, operational risks and capabilities of a range of options will enable us to better evaluate the options before we transition our fleet.

Approach

Project partner Frazer-Nash carried out desk-based research to gather the necessary data, including Wales & West Utilities fleet-specific data rapid charge point locations, rapid charger use and existing fleet information. They then developed an initial proof of concept of the model to confirm the accuracy of their assumptions and the information gathered.

Next, the team developed the fleet Feasibility and Cost Models and defined a set of scenarios to run them against, based on different vehicle use cases such as varying payloads or towing capabilities and restrictions along with a range of other variables. They also made sure the Cost Model could quickly identify appropriate fleet mixes and replacement strategies that balance cost and risk.

Frazer-Nash then refined the models, developed an intuitive dashboard, incorporated Zero Emission Vehicle policy and technology factors and developed training materials. They also trained colleagues on how to use the model and engaged stakeholders before delivering the technical documents and final report.

Benefits

Decarbonisation of our vehicle fleet is a vital part of our programme to deliver a net zero gas network. This project enables us to optimise our future investments in moving to a zero emission operational vehicle fleet while minimising operational risk to our emergency response duties and additional costs, which ultimately benefits the consumer.

The primary output is a TCO tool that integrates operational feasibility assessment with lifecycle cost modelling. This will enable us to replay historic demand and account for refuelling opportunity, seasonal variations, emergency response requirements and infrastructure availability in any decision we make on decarbonising our commercial vehicle fleet.

Although specific to our own circumstances, the results are expected to be of value to all UK gas distribution networks that have similar operational vehicle fleets as the model should allow any equivalent dataset to be loaded into it. The modelling framework can also be updated as technologies, costs, policies and infrastructure evolve. It can also serve as an evidence base to support investment decisions, future trials, infrastructure planning and engagement with regulators and suppliers.

Case study:
Future Energy Loads

Understanding future energy loads from data centres

With data centre power consumption predicted to triple between now and 2030, we wanted to understand the potential role of the gas distribution networks in enabling that growth, particularly in the context of the sector's net zero ambitions. This collaborative project between ourselves and SGN looked at how gas networks could service the sector as a source of primary and backup power by supplying natural gas, blend or 100% hydrogen.

Project breakdown

HOW: Gap identified; tendered for partner

WHO: Wales & West Utilities, SGN

PROJECT PARTNERS: Apollo, Stantec

FUNDING MECHANISM: Network Innovation Allowance

Need

The demand for data centre capacity is expanding rapidly, particularly in the United Kingdom, which has the largest capacity in Europe. Data centres have enormous power demands, collectively consuming 2.5% of the UK's electricity – a figure that could rise to 6% by 2030. These centres need a dependable, uninterrupted flow of electricity to power servers and supporting equipment and to provide cooling. This is currently sourced from the local grid, but to reduce emissions and secure supply many data centres are considering generating power on site using natural gas or hydrogen. This study looked at how the gas distribution industry could help.

Approach

Project partners Apollo and Stantec started by interviewing experts in energy network infrastructure, development strategy, installation and data centre operation.

They then conducted a review of academic journals, industry reports and institutional publications to understand the current state of the UK sector, key energy infrastructure constraints, emerging trends and relevant energy technologies.

Following this, the team assessed areas of the gas network that could feasibly meet the current and projected needs to support data centre connections. They also developed a GIS map to evaluate where data centres are in relation to the existing network.

The team used the findings to generate case studies that explored the likely outcomes of converting a number of existing data centres to be powered by gas, blend or 100% hydrogen.

Researchers then collated the results into a final report and accompanying resources that will allow us to engage with interested stakeholders in future.

Benefits

This project enabled us to see whether it is currently feasible for the network to be repurposed to support decarbonisation at data centres using either blended or 100% hydrogen and further underlines the value of converting the networks to carry the low-carbon gas.

It identified several data centre sites where gas network connection could provide a viable alternative to constrained electricity supplies, improve data centre development timescales and enable growth in new regions. It also demonstrated how existing gas infrastructure could be future proofed to support blended and 100% hydrogen supply for lower carbon operation.

This work also helps all gas distribution networks plan for delivering blended and 100% hydrogen to data centres by identifying the scale and timing of needs as well as any potential barriers and challenges.

Ultimately, repurposing the networks to carry hydrogen has the potential to save millions of pounds with minimal gas customer disruption versus alternative decarbonisation solutions.

Case study:
H2 Rail

H2 Rail

The H2 rail project explored the feasibility of integrating hydrogen refuelling infrastructure to support the development of a hydrogen rail network. Leveraging existing assets has the potential to provide a cost-effective route to decarbonise some of the more challenging aspects of transport and hardest-to-electrify rail routes. This has particular relevance to our network as some routes in Wales and south-west England are particularly challenging.

Project breakdown

HOW: Gap identified; tendered for partner

WHO: Wales & West Utilities

PROJECT PARTNER: Frazer-Nash

FUNDING MECHANISM: Network Innovation Allowance

Need

After completing a study on road vehicles in a previous project, HyDrive (NIA_WWU_02_59), researchers noted hydrogen could be a useful way of decarbonising heavy vehicles. They also found it would be worth considering rail transport separately, particularly the feasibility of connecting refuellers to our existing network and for building new infrastructure to support refuelling on the rail network.

Approach

The project team began by analysing data and reviewing existing literature and relevant technology information. Following this, they identified potential sites for hydrogen refuelling stations and assessed their feasibility, looking at criteria such as supply capacity vs predicted demand, proximity to primary gas network feeds, decentralised refuelling options and rail depots and hard-to-electrify rail routes.

The team then built a scenario analysis model that can develop high-level options for urban and rural hydrogen rail refuelling networks. They then studied the most promising options to better understand the implications for gas pressures, pipeline sizes and compressors at these potential sites.

Researchers next looked at how economically viable proposed hydrogen refuelling infrastructure would be, comparing this with the costs associated with battery electric alternatives. Finally, the project team published a report and recommendations and produced a roadmap towards real-world deployment of the most feasible options.

Benefits

The study demonstrated high potential for hydrogen powered rail in the Wales & West Utilities region. Large sections of the network are either unsuitable or unlikely to be electrified, making hydrogen a practical and sustainable alternative. The region already has gas pipelines that can be repurposed or newly developed for hydrogen transport, which provides a good foundation for any future implementation.

The success of any such project will depend on co-ordinated planning, regulatory development and continued technological progress. Further analysis of the shortlisted sites and their associated services would be beneficial to reduce uncertainty about costs and demand for hydrogen.

Case study:
Net Zero
Rollout

Net zero rollout – hydrogen assessment

In recent years, the gas networks have collaborated on a range of innovation projects on the feasibility of converting existing assets to transport hydrogen. Repurposing the UK gas networks with hydrogen to support decarbonisation could reduce costs and disruption for consumers, if supported by future policy decisions and growth in the supply of low-carbon hydrogen.

Project breakdown

HOW: Gap identified; tendered for partner

WHO: Wales & West Utilities, SGN

PROJECT PARTNER: Arup

FUNDING MECHANISM: Network Innovation Allowance

Need

Network research has provided extensive evidence on the feasibility of hydrogen conversion, but methodologies are required to understand how this data and information can be applied to specific areas of the gas grid. This will support decision making around the future of the network, and identify any further evidence if required.

Approach

Following a review of previous work and shortlisted area criteria such as proximity to, and size of, hydrogen production sites, network suitability and types of houses within the area, project partner Arup evaluated three areas using Geographic Information System mapping and developed a Multi Criteria Assessment. The project team then created a key stakeholder plan for each area, reviewing previous engagement activities and considering what had been learned from other projects to inform what should be in the technical assessment.

The team then carried out desktop research to understand what changes would be needed to existing assets and where. Experience was drawn from previous work including hydrogen village trial feasibility studies and the Wales & West Utilities led Lessons Learned from the Past (NIA_WWU_2_17 & NIA_WWU_02_62). They then categorised building types across the network, made recommendations on the work required and factors which would inform the practical delivery of a rollout.

Lastly, Arup drew up stakeholder and customer engagement plans to consider how to prepare communities for any switch and facilitate a successful rollout, and delivered findings in a final report. This will inform Wales & West Utilities' response to any future policy decisions related to dedicated hydrogen networks.

Benefits

Completion of this project has given us a better understanding of what would be needed for a 100% hydrogen conversion of our network within the case study areas. It sets out the critical path for rollout, drawing together evidence from other projects, and means we are much better prepared to roll out a conversion should the Government decide to promote hydrogen conversion in future. Its findings are transferable to all other gas networks.

Case study:
Lessons learnt
– Phase II

Lessons learnt – Phase II

In late 2023, we completed the Lessons Learnt project (NIA_WWU_2_17), which looked at the gas industry's experience of converting the homes and premises in the UK to run on natural gas instead of town gas between 1967 and 1977. The second phase of the Lessons Learnt project focused on commercial and industrial customers and two related subjects: where gas infrastructure was decommissioned, and where the energy supply had become largely dependent on electricity.

Project breakdown

HOW: Follow on project

WHO: Wales & West Utilities

PROJECT PARTNERS: WSP, SGN

FUNDING MECHANISM: Network Innovation Allowance

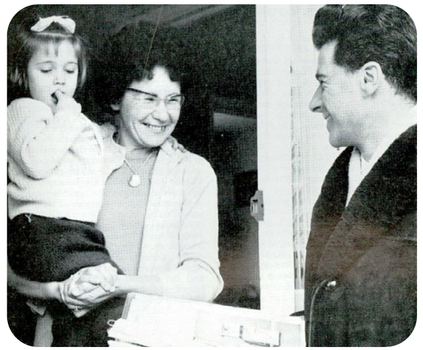
Need

Ahead of national energy network transition or conversion, including the potential repurposing of the gas network that would be needed if the UK Government decides in favour of hydrogen for home heating, it's important to explore whether lessons from the previous energy transition are relevant. Phase I of the Lessons Learnt project went into considerable detail about the domestic conversion that took place. When we presented the learnings from the project, there was interest in further study on experiences of industrial and commercial conversion.

Approach

During the first part of the project, partner WSP undertook a detailed review of existing literature and archive material on industrial and commercial conversions. In particular, researchers looked at the development of standards for conversion and new natural gas equipment, testing and safety regulations developed for sites and how they were adequately resourced to support businesses through the transition. They also investigated public opinion, how this was documented and how the industry managed it, alongside the main drivers for industrial conversion.

Following this, WSP studied energy network conversion and previous decommissions (in Northern Ireland), examining the impact of moving to alternative energy sources, any potential downsides and positive changes brought about as a result.



All the project findings were compiled into a final report, while the team also produced 30-page reports into each of the individual work packages as well as single-page summaries and infographics. The findings were then shared with other gas distribution networks (GDNs) and interested stakeholders through a series of online webinars.

Benefits

This project will give us valuable insights into the process of converting UK homes to hydrogen from natural gas via retrofit, which would significantly reduce the country's carbon emissions and help achieve ambitious net zero targets.

It will also enable us to learn more about how customers interact with hydrogen appliances and to develop technical standards, skills and training for hydrogen appliance installation.

Case study:
NextGen Electrolysis

NextGen Electrolysis – wastewater to green hydrogen

While gas distribution networks are researching preparation of their infrastructure to deliver hydrogen to power industry and heat homes, green hydrogen production cost is currently high due to the energy and water purification standards required. Having proven the initial feasibility of a new technology to produce the green gas from wastewater in previous trials, we now need to demonstrate how this could work in practice at scale.

Project breakdown

HOW: SIF proposal from supplier

WHO: Wales & West Utilities, SGN

PROJECT PARTNERS: Hydrostar, Yeo Valley, Welsh Water, National Grid Electricity Distribution

FUNDING MECHANISM: SIF

Need

Production cost of green hydrogen is high due to the barriers presented by current technology used, which involves not only sources of carbon-free electricity such as solar or wind power but also pure water and the equipment to purify it. It also requires expensive membranes made from rare metals to carry out the necessary electrolysis. We have already proven innovative membraneless technology can produce green hydrogen from less pure water sources, but we need to carry out further trials to see how this technology can be deployed at scale and in the context of a gas distribution network.

Approach

The beta phase of this project involves running two separate trials – one at a Welsh Water treatment facility near Cardiff and another at the Yeo Valley production site in Cannington.

With Welsh Water, we will be using effluent water and sea water and the company's existing solar power to produce hydrogen for on-site office heating and hot water via a Worcester Bosch boiler. This will give the team the opportunity to assess an industrial site using 100% hydrogen for heating and hot water for their office building.

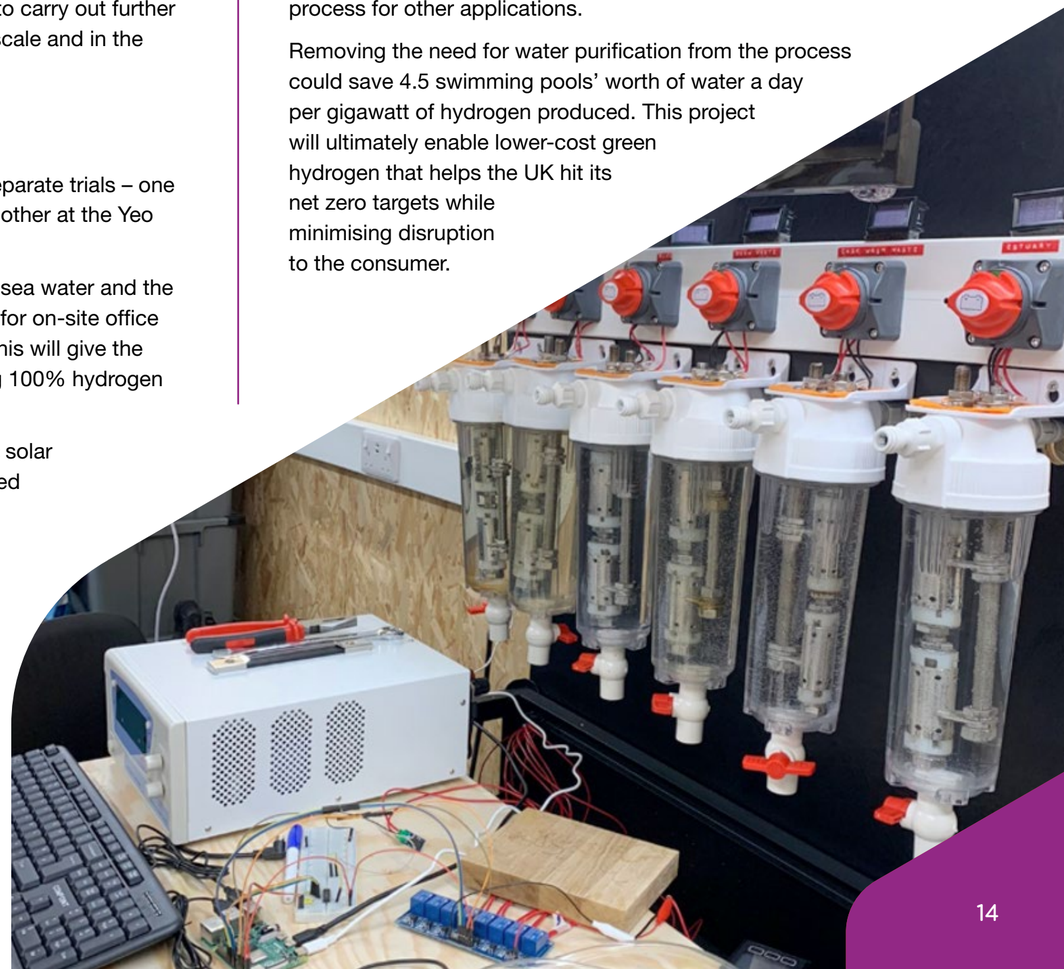
At Yeo Valley, our team will use the company's on-site solar power and various sources of water, including that used in the production process, captured rainwater and borehole/river water to produce hydrogen.

We are investigating using on-site blending equipment to combine up to 20% hydrogen with natural gas to the existing boilers used in the process for producing yoghurts. This will give us the opportunity to assess near-term use of hydrogen for an industrial customer and better understand the operational and safety requirements for hydrogen blending technology and future network integration.

Benefits

Testing the distributed hydrogen production model will give us a much better understanding of how early adopters can decarbonise and could reduce the operational barriers for smaller scale hydrogen production. Not only that, but excess hydrogen could also be blended into the local gas network in the future, which may offer cost savings due to co-location and through using the heat and oxygen produced in the process for other applications.

Removing the need for water purification from the process could save 4.5 swimming pools' worth of water a day per gigawatt of hydrogen produced. This project will ultimately enable lower-cost green hydrogen that helps the UK hit its net zero targets while minimising disruption to the consumer.



Case study:
Smart Pressure Control

Smart pressure control deployment

This deployment project, building on previous NIA work, looked to solve an issue where biomethane could not be accepted into the network due to network constraints.

We are introducing more biomethane into our network to continue to reduce our carbon emissions. This brings many challenges, particularly because new biomethane producers are often unable to connect due to capacity or are constrained when there is less demand for gas.

As part of the innovation project OptiNet (NIA_CAD0061), we introduced a smart pressure control (SPC) system to a small area of our network to prove the concept of automatic pressure control that maximises biomethane injection into the gas network. This trial builds on that project to deploy the technology at a larger scale.

Need

The previous approach to avoid biomethane being unable to inject into the network due to capacity challenges, was to manually reduce pressures around the network to accommodate injection. This approach is reactive, not always possible and doesn't support the aim of ensuring as much biomethane as possible can reach our customers.

These trials are the first of their kind in the gas distribution sector, and are designed to increase biomethane capacity all year round and automatically manage fluctuations in demand. By addressing the critical issue of network pressures, this SPC system could lead to more homes receiving green energy via biomethane.

Approach

The first part of this project involved planning the installation and commissioning of control and monitoring equipment at several sites on the Swindon to Honiton medium pressure (MP) network. This included safety assessments, material procurement, training and work associated with our procedure for managing new works, modifications and repairs (T/PM/GL/5). It also meant developing internal Non-Routine Operation procedures.

Building on the progress made during OptiNet, we identified the need for further control and monitoring equipment at 17 sites across the Swindon to Honiton MP network to achieve a fully dynamic system. We phased this work so existing biomethane sites could begin benefiting from a partially completed smart pressure network while also avoiding placing excessive installation demands on our operational teams.

Project breakdown

HOW: Follow on deployment project, tendered for supplier

WHO: Wales & West Utilities

PROJECT PARTNER: YZ Systems

FUNDING MECHANISM: UIOLI

The project was divided into two main phases:

- Installation and commissioning of nine sites
- Installation and commissioning of eight sites.

Alongside the installations, we are developing a new control strategy. The Phase 1 sites will be integrated into the smart pressure control system before summer 2026, meaning they will be able to operate automatically and respond to real-time conditions such as higher biomethane pressures. Phase 2 installation and commissioning is already under way and, once fully completed, we will integrate these sites into the system as well.

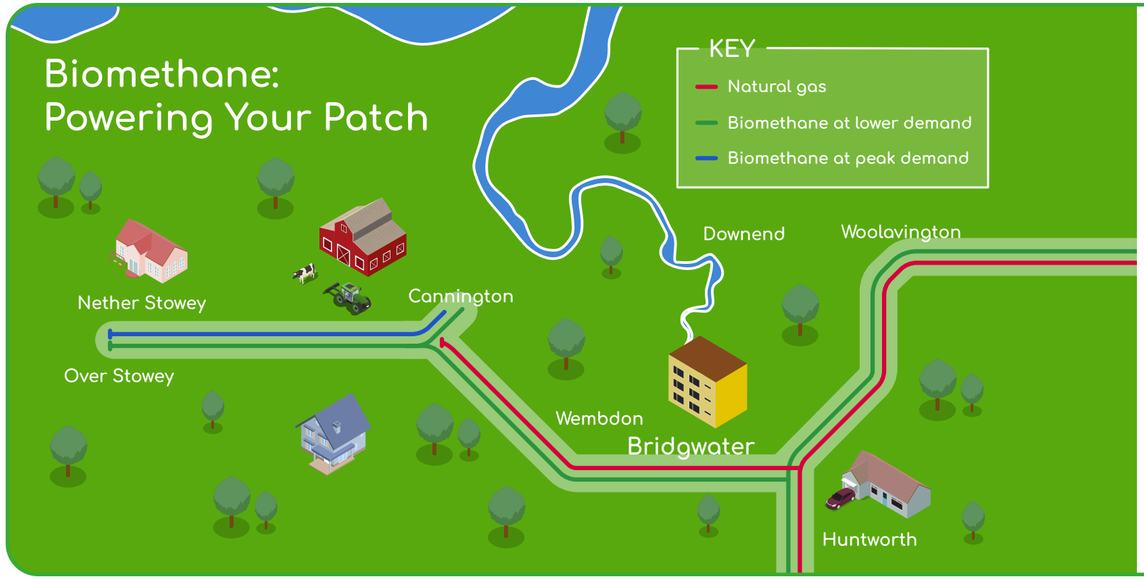
One of the key challenges has been the number of sites without access to mains power. Our team addressed this by installing solar panels where space allowed and by using more advanced technology in particularly rural locations.

Benefits

When the project is finished, the Swindon to Honiton MP system will be automated and controlled dynamically, allowing us to maximise biomethane input and maintain supply security. The SPCs also improve safety by maintaining lower pressures in those parts of the network.

By increasing capacity and allowing more biomethane sites to connect, we are encouraging more green gas production, contributing to a low-carbon future and ultimately helping the UK meet its decarbonisation targets. Through this project alone, we could accommodate an extra 6,300 standard cubic metres/year of green gas, enough to heat 48,353 more homes while also delivering an estimated £10,000 savings a year on engineer call-outs. We will continue to roll out SPC more widely in our network during the RIIO-3 price control, to enable even more green gas to be injected into the network.

Biomethane Pathways



To show how biomethane can be used in practise:

- Nether Stowey is a rural community nestled in the heart of Somerset that has recently celebrated a remarkable milestone of 10 years heating homes and powering businesses with locally produced renewable biomethane from a nearby farm.
- We have worked alongside local biomethane producer, Cannington Enterprises, to supply green gas to Nether Stowey and its neighbouring village, Over Stowey. A population of around 1,400 people in our communities benefit from the partnership, and a model has been created for how rural communities can embrace clean energy and reduce carbon emissions without changing the way they live.

Innovation has been, and continues to be, part of the biomethane journey, supporting technology development to help maximise the levels of green gas on our network using methods and tools like capacity control and changes to process. Some projects that showcase developments in these areas are listed below:

- **Smart Pressure Control** (led on from Optinet) (Complete)
- **LPG to Biomethane Conversion** (Ongoing)
- **Enhancement of the anaerobic digestion process for bio-methane production** (Ongoing)
- **Capacity Heat Mapping** (Planned)

What is biomethane?

- Biomethane is a green renewable natural gas fuel produced from anaerobic digestion of organic material. Feedstock, which is typically sourced from farms, is digested in a process similar to the behaviour of a cow's stomach, producing methane and bio-CO_2, called biogas.
- This gas can be burned in heat and power plants to produce low-carbon electricity, and we have enough biogas in the gas network today to supply around one million homes and businesses.
- Biomethane supports sustainable waste management for agriculture, utilising slurries and crop waste, unavoidable food waste and sewage sludge that would otherwise release harmful emissions. Instead, it is processed to produce useful energy with waste materials from the process able to be used as fertiliser.
- Home-grown energy like biomethane supports national energy security by displacing fossil fuel natural gas to deliver carbon savings without requiring changes for our consumers.

Green Gas TASKFORCE

We are members of the Green Gas Taskforce, where we share information and disseminate projects, to help unlock future benefits of biomethane.

Deployment

Hydrogen Research and Development Programme

Overview: Across the programme of hydrogen research and development in RIIO-2, gas networks shared the portfolio of projects and supported each other through working groups. The funding of these projects was covered by the lead network but ensured collaboration in the overall portfolio and the delivery of each element of evidence. Each network worked alongside the lead network to contribute resources and information to the projects attending various project meetings, steering boards and contributing and reviewing reports and submissions to both the HSE and DESNZ.

Benefits: Project output reports were submitted as evidence to both the HSE and DESNZ to support policy and safety decision making.

Consumer Vulnerability Impact Assessment Tool

Overview: A new tool was developed to ensure each network was able to assess every flexibly funded innovation project in RIIO-GD2 for any potential impact those innovation projects may have on vulnerable consumers, to ensure that all customers are included in the journey to net zero from the start. By including the most vulnerable in these assessments and how each innovation project may impact these consumers, with accompanying mitigations.

Benefits: The tool ensures innovation projects are assessed up front for any impact on vulnerable consumers, ensuring that vulnerable consumers remain at the forefront of innovation to support the energy system transition.

Pathfinder

Overview: Pathfinder is an energy modelling tool built to support local and regional planning, providing invaluable system insights to understand the operational implications of a decarbonisation strategy, allowing a variety of stakeholders to understand engineering trade-offs. It is also a great example of iterative innovation development through price controls that are continually deployed to create real-world benefit. This project was also supported by a dedicated rollout allowance Wales & West Utilities received in RIIO-GD2.

Benefits: To date, Pathfinder has been utilised as part of 33 projects which include the Welsh LAEP programme, Milford Haven Energy Kingdom and Gas Goes Green. Of the 33 projects, we have completed 213 Pathfinder “runs” with an average of over six per project involvement. Pathfinder has been offered and shared with more than 60 different organisations and local authorities which include Swansea Council, Devon Council, Northern Powergrid and DNV.

Smart Pressure Contol

Overview: We are at the forefront of smart pressure control development – after a successful NIA OptiNet project trial outcome – we are now about to automate the control of a large distribution network to maximise biomethane entry whilst maintaining security of supply by utilising our NZARD UIOLI funding to support the roll out.

The medium pressure network runs from Swindon to Honiton and contains over 679 km of gas pipes to be controlled, which is approximately 100 miles of network area as the crow flies. More info on the exciting project can be found **here**.

Benefits: Once the control and monitoring equipment has been fully commissioned at the 17 natural gas sites impacted, we anticipate being able to heat 48,353 homes in total with the currently connected and future biomethane sites; that’s an equivalent carbon displacement of 123,000 Tonnes CO_2e pa.

The new method is cost efficient, secure and provides additional benefits to the customer experience and the environment.

Out and about

While knowledge sharing and engaging with our stakeholders are year-round activities, events offer further opportunities for us to meet with other innovators, industry colleagues, and decision makers. Together we initiate new, or build on existing partnerships, share information, and keep the momentum moving. Read on for an outline of the key events we attended in 2025-26.

Innovation Zero 2026

In April 2026, we once again took part in **Innovation Zero**, the UK's largest net zero congress, held at Olympia London. The event brought together more than **7,500 delegates**, **300+ speakers**, and **350+ exhibitors**, creating a powerful platform for accelerating the low-carbon transition.

This year's programme spanned **eight major forums** and over **54 sessions**, covering themes such as climate resilience, clean growth, electrification, digitalisation, and advanced manufacturing. We were part of 'The Role of Green Gas in Delivering a Flexible, Low Carbon Grid panel', showing how we're developing use of green gas across our network.

As with previous years, Innovation Zero provided valuable opportunities to engage with partners, innovators, and policymakers, ensuring Wales & West Utilities remains at the forefront of conversations shaping the UK's net zero future.

NEWID / Deeside Decarbonisation Forum

We continued our active involvement in the **NEWID industrial decarbonisation cluster**, supporting the development of **HyLine Gogledd** – a proposed **32 km hydrogen pipeline** from Deeside to Wrexham. The project aims to supply hydrogen to energy intensive industries that currently account for **55% of the region's energy demand**, helping transform North-East Wales into a clean energy hub.

The Deeside Decarbonisation Forum provides a collaborative platform for industry, local authorities, and partners to align on regional decarbonisation priorities. Our participation ensures that any hydrogen infrastructure planning we conduct integrates with wider economic and skills development across Flintshire and the surrounding region.

South-West Business Council – Autumn Conference

The **South-West Business Council (SWBC) Autumn Conference** explored the region's potential to attract **£30bn of inward investment** into energy transition sectors including floating offshore wind, hydrogen, battery storage, and tidal power. It took place in Plymouth University in September 2025.

Alongside colleagues from **NGED and NESO**, our team in attendance from Wales & West Utilities hosted a post-conference **ideas workshop**, bringing together stakeholders to generate fresh innovation concepts for the south-west. The workshop focused on three key areas, Capacity and Flexibility for Decentralised Gas and Electricity, Whole Systems Integration and Future Workforce. This collaborative session helped identify opportunities for hydrogen infrastructure, industrial decarbonisation, and cross-sector partnerships aligned with the region's long-term energy ambitions.

Out and about

Continued...

Green Gas Taskforce

The **Green Gas Taskforce** is an ongoing platform for collaboration, established in 2024 to support the growth of biomethane and low-carbon gas across the UK. The Taskforce brings together gas networks, policymakers, and industry partners to build the evidence base for delivering clean power by 2030 and net zero by 2050.

Matt Hindle, our Head of Net Zero & Sustainability, regularly participates in Taskforce activity, ensuring our expertise at Wales & West Utilities informs national discussions on the future role of green gas. The Taskforce often utilises NIA funding to further enhance the role biomethane can play in the energy sector; it also provides a route for stakeholders to engage with us on biomethane opportunities.

Next stop Glasgow 2026

The Energy Innovation Summit 2026

4-5 November at the Scottish Event Campus in Glasgow

CRISP26 – Welsh Government Innovation Support Meetings

Our innovation team at Wales & West Utilities continues to participate in **CRISP26**, the Welsh Government's **Collaborative Research Innovation Support Programme**. These online sessions provide tailored guidance to organisations preparing R&D projects, offering access to Innovate UK, Innovate UK, European Space Agency, UK Defence Innovation, Royal Academy of Engineering and Horizon Europe, and other expert bodies.

Regular attendance ensures we remain connected to the wider innovation ecosystem of Wales which helps to shape future funding and collaboration opportunities.

Appendix

Live project portfolio

Part 1-of-4

The following pages outline all projects that were live in 2025-26, with case studies showing how each project aligns with a key theme, how partners have worked with us, how we've collaborated with other networks, and which funding mechanism was used.

If you have an idea that aligns with our key themes, please contact us >

Digital by Default

To promote the use of open, interoperable data and digital tools to make every decision smarter, faster, and more transparent.

Project reference	Project name	Description	Partner	Link
NIA_ WWU_02_110	GDN Gas Quality Forecasting	This project aims to develop a means of forecasting gas quality at the NTS offtakes, which will support current arrangements for target calorific value (CV) setting, allowing networks to more accurately provide target CVs to biomethane producers and reducing sudden changes in targets sent to biomethane sites.	Frazer-Nash	
NIA_ WWU_02_115	Project ARAIA – Asset Readiness AI Assessment – H2	This project will produce reports that will compare the Asset Interventions Database vs their asset base, to provide an estimated readiness rating and confidence level against the gas networks assets for the conversion to hydrogen, both 100% and blended.	BMA	

Equitable Energy for Everyone

To deploy innovation to ensure that our customers in vulnerable situations are not left behind during an energy transition and they have access to the technology and tools to reduce energy consumption.

Project reference	Project name	Description	Partner	Link
NIA_2_SGN0073	The Fairer Warmth Hub	The Fairer Warmth Hub project looks to link consumers, policymakers and networks by offering tailored support to various stakeholders, including households, small businesses and local authorities, to ensure an inclusive and just energy transition.	CEE	
NIA_WWU_02_87	The Warmth of Community	The aim of this project is to deploy a hybrid heating system on a domestic scale and also option for communal hybrid heating solution for larger stock areas of Caerphilly Council. The project will provide networks with demand data and look to aggregate this over Caerphilly Council stock to understand wider impact on gas networks, if this was considered a viable option to decarbonise housing stock.	Apollo Engineering	
NIA_WWU_02_81	Understanding Consumer Behaviours for a Just Transition	The aim of this project is to deliver independent, evidence-based research on consumer behavioural insights relating to domestic heat sources during the energy system transition.	Frazer-Nash	

Flexible and Seamless Connections

To enable a clean, resilient gas future by connecting, blending and transporting more green gases and facilitating new, flexible demand side applications.

Project reference	Project name	Description	Partner	Link
NIA_WWU_02_97	Maximising Capacity at Biomethane Sites	The aim of this project is to develop realistic network and/or entry site solutions that will enable biomethane supply to meet the swings in demand throughout the year, so that we can materially impact decarbonisation of the gas in this area through biomethane.	Apollo	
NIA2_SGN0104	Blending Implementation Phase 2B	Following the successful completion of Blending Implementation Plan (BIP) Phase 1 (Planning) in 2023 and BIP Phase 2A (Design) in 2025, the gas networks have engaged KPMG to proceed with the next phase of the programme, BIP Phase 2B (Delivery). The outcomes of Phase 2B will create a clear and consistent pathway for individual networks to support the application window and connections process, alongside addressing common areas of industry governance, based on collective decision making to meet timelines of future Hydrogen Allocation Rounds.	KPMG	
NIA_ WWU_02_118	Green Gas Gateway	The Green Gas Gateway project seeks to explore the potential for more standardised approaches to support capacity for biomethane and overcome constraints.	ARUP	

Continued >

Live project portfolio

Part 2-of-4

Reducing our Environmental Footprint

To reduce the environmental impact of our businesses through advanced detection and remedy whilst investing in low-carbon construction and maintenance technology.

Project reference	Project name	Description	Partner	Link
NIA_CAD0113	Probabilistic Fitness-for-Service Assessment of Hydrogen Pipeline Girth Welds	Girth welds of an unknown quality exist in the Cadent LTS and, to repurpose a pipe for hydrogen, these need to be known. The project will conduct a review of construction records to establish database of girth weld materials and ages and create a statistical databases for the welds.	DNV	
NIA_WWU_2_73	Rising Pressure Reformer Study	This study will assess the application of Rising Pressure Reformer (RiPR) technology to produce a tuneable blend of biogenic methane and hydrogen, supporting the decarbonisation of gas networks. The project will focus on how control of the gas produced would fit with requirements for network injection, and assessing locations for connection.	Wild Hydrogen	
NIA_ WWU_02_108	Alternative to Overhead/ Underground Electricity Cables	This project will consider what role the below ground gas network (new or repurposed) could play in transporting energy over long distances, instead of electricity transmission and distribution upgrades.	Apollo Engineering	
NIA_ WWU_02_109	Project Volta	This project will build, commission and test the world's first direct electrically heated fluidised bed reactor specifically designed to produce hydrogen from natural gas on distributed sites.	Apollo Engineering, Volta Hydrogen	
NIA_CAD0125	Excess Flow Valve (EFV) Durability	It has been evidenced that air is able to enter flammable gas installations during periods of isolation or no demand. Mitigation strategies have been identified which enable any air ingress risk to be effectively managed in domestic hydrogen installation. However, work is required to prove that in the worst-case scenario, ignition of a flammable gas mixture within the installation pipework, the functionality of the critical safety component on the installation is not compromised.	Kiwa	
NIA_CAD0123	Domestic Air Ingress Mitigations	It has been evidenced that air is able to enter flammable gas installations during periods of isolation or no demand. Mitigation strategies have been identified which enable any air ingress risk to be effectively managed in domestic hydrogen installations. Work is now required to demonstrate that the identified mitigation strategies can be effectively implemented, focusing on ensuring that future domestic hydrogen appliances can be designed and certified to be resistant to flashback when supplied with a flammable hydrogen concentration.	Kiwa	
FI_0068	Air Ingress in Multi Occupancy Buildings (MOBs)	It has been evidenced that air is able to enter flammable gas installations during periods of isolation or no demand. Research to date has focused on domestic installations, with a strong understanding developed of the various mechanisms that control and influence air ingress. This understanding has enabled assumptions to be made in relation to the implications of air ingress in MOBs – these assumptions need to now be validated by experimental data to prove that air ingress does not become a barrier to hydrogen conversion of commercial properties.	Steer Energy	
NIA_ WWU_02_106	Effects of Water Ingress in a Hydrogen Network	Water intrusion can lead to issues such as corrosion of materials, hydrogen embrittlement, and contamination, potentially compromising safety and efficiency. The project investigates the impact of water ingress in hydrogen gas mains, focusing on the unique challenges posed by hydrogen's properties.	Steer Energy	
FI_0073	Low Carbon Conversion of Non-Domestic Properties Utilising Distributed Natural Gas – A Technoeconomic Study	This project aims to investigate the technical and economic feasibility of converting non-domestic buildings from natural gas to low-carbon energy sources, specifically hydrogen and electricity. It aims to address the significant evidence gap around the conversion of commercial and institutional buildings that are currently supplied by the GB gas distribution networks.	Kiwa	
FI_0072	Air Ingress in Commercial Installations	It has been evidenced that air is able to enter flammable gas installations during periods of isolation or no demand. This project will investigate the risk of air ingress in medium to large commercial gas installations, particularly in the context of hydrogen transition. The project will build on previous domestic focused research and aims to understand whether similar risks and mitigation strategies apply to commercial systems.	Kiwa, DJS, HSE	
NIA_WWU_02_82	Sector Size Assessment	There is a need to look at the assumptions that have been made on sector sizes and assess the practicability of these from a cost, resource availability, logistics and deliverability standpoint. The project will assess the sectorisation assumptions for a large-scale rollout, taking into account the GDN element as well as the linkage to the end user requirements.	Costain	
NIA_CAD0137	Hybrid Heat Systems (HHS) Acceleration Route	This project will deliver strategic analysis and recommendations to support the accelerated adoption of Hybrid Heat Systems (HHS) in GB by assessing technology options, commercial models, stakeholder perspectives, and system integration pathways.	Guidehouse	
NIA_WWU_02_89	Hydrogen Fuel Cell Operating Hub for Repex/Large Scale Projects	The objective of this project is to identify a suite of suitable zero-emission mobile plant assets, tools and equipment for carrying out Repex work that Wales & West Utilities could hire or purchase for operational trials, and to identify opportunities for changing equipment items to simplify recharging/refuelling requirements in the future.	Cenex	

If you have an idea that aligns with our key themes, please contact us >

Continued >

Live project portfolio

Part 3-of-4

Reducing our Environmental Footprint (cont.)

Project reference	Project name	Description	Partner	Link
NIA_CAD0130	Calorific Gas Sensor	This programme is leveraging three suppliers to develop a range of novel calorific value sensors that will enable calorific value to be accurately measured at different points on the network without the need for venting. The programme comprises three individual projects, which will develop each suppliers' technology up to a sufficiently high TRL where the sensors are ready to be trialled in the field.	Bohr, Renda, Thyson Technology	
NIA_WWU_02_52	WWU Intermediate Scale Hydrogen Storage Evaluation (HyWISE)	The project endeavours to assess the suitability of the geology around Wales and the south-west of England to host Underground Hydrogen Storage (UHS) solutions for hydrogen storage. Technical evaluations will be undertaken to match storage technologies to Wales & West Utilities' region and map these options to existing energy infrastructure.	University of Edinburgh	
NIA_WWU_02_85	Hydrogen Refuelling from the Network	Hydrogen refuelling directly from the gas network may be a possibility in the future. However there is a requirement to understand what additional equipment is required to facilitate refuelling directly from the network. This project will assess the requirements for both hydrogen ICE and hydrogen fuel cell vehicles to determine purification requirements as well as compression.	Costain	
NIA_WWU_02_84	Hydrogen Combustion Engine Feasibility Study	This project seeks to explore the feasibility of hydrogen internal combustion engines (H2ICE) as an alternative to diesel and Fuel Cell Electric Vehicle (FCEV) within Wales & West Utilities' operational fleet, feeding into a holistic assessment of H2ICE applicability across Wales & West Utilities' vehicle assets.	Cenex	
NIA2_SGN0093	Carbon Networks – Phase 2	This work will follow on from Phase 1 of SGN's Carbon Networks project (NIA2_SGN0079) to define the role of GDNs in repurposing, building, owning and operating Carbon Capture, Utilisation and Storage (CCUS) pipelines and supporting infrastructure.	Blunomy	
NGN_NIA_426	Futures Close Heat Programme (FC Heat)	Via the Heating and Hot Water Industry Council (HHIC), Vaillant Group, Groupe Atlantic, Worcester Bosch and Baxi are collaborating to install, commission, test and monitor a series of heating systems within nine properties on Futures Close that are archetypal representations of England's wider housing stock.	Leeds Beckett University, Vaillant, Bosch, Ideal	
NIA_WWU_02_92	High-Pressure Materials Analysis (HPMA)	This project aims to evaluate the feasibility of using High-Density Polyethylene (HDPE) pipes for applications requiring pressures above 7bar and compatibility with 100% hydrogen. The study will include comprehensive analysis of HDPE pipe characteristics, market availability, technical performance, cost implications and potential risks.	QEMS	
NIA_WWU_02_91	HyProximity	The HyProximity project aims to develop a robust, evidence-based framework to support the introduction of standardised separation distance tables for 100% hydrogen, similar in format and function to those in IGEM/TD/3 for natural gas and hydrogen blends. This will address a gap in current standards for hydrogen.	DNV, IGEM	
NIA_ WWU_02_112	Air Ingress in a Live Enviroment	Using Cartrefi Hydrogen Home as a test case, this project will enable remote monitoring of air ingress phenomena within the home. The system will be used to characterise the current behaviour of the house and to investigate generic air ingress dynamics in a representative domestic hydrogen installation.	Steer Energy	
NIA_ WWU_02_114	Project Evergreen	The fundamental aim of this project will be to understand how much of the GB gas network is needed to operate a system constrained to FES 2025 scenarios (with some adaptation from wider literature review and assessment) and in future scenarios and how this may operate, and define further work which may be required to deliver this system.	Baringa	
NIA_ WWU_02_113	Capstone	The project will trial the integration of HYDUS in a gas network context. It will assess the technical feasibility, operational safety, control interface, spatial requirements, and economic performance of HYDUS as part of the HyLine corridor. The method includes spatial, network and economic impact modelling, selection of viable deployment sites, and analysis of the role HYDUS could play in providing linepack flexibility, managing system balancing, and enabling secure supply to end users.	LCP-Delta	
NIA_ WWU_02_102	Network Classifier	This project will develop a hydrogen-specific, risk-based gas escape classification system for Wales & West Utilities by reviewing existing standards and methodologies, modelling hydrogen leak behaviour, conducting field trials, and developing a final operational tool and updated procedures.	DNV	
NIA_WWU_02_86	H2 Storage Phase 2	The aim of this project is to assess the suitability of Wales & West Utilities' three high-pressure gas storage vessel sites for storage of hydrogen and hydrogen blends by evaluating capacity and pressure requirements, the implications of removing the vessels entirely, and down-selection of viable liner materials and application methods.	NCC	
NIA_ WWU_02_116	Lined Rock Caverns Phase 2	This project advances the work undertaken for the Role of Lined Rock Caverns for Hydrogen Storage project (NIA_WWU_02_65) to progress lined rock caverns (LRCS) as a flexible hydrogen storage solution in Wales & West Utilities' area by moving from regional screening to site-specific pre-feasibility.	ERM	

If you have an idea that aligns with our key themes, please contact us >

Continued >

Live project portfolio

Part 4-of-4

Reducing our Environmental Footprint (cont.)

Project reference	Project name	Description	Partner	Link
NIA_ WWU_02_117	OptiStore	Whilst hydrogen can be stored as a liquid, this process requires extremely low temperatures which is technically complex and costly due to the energy required to maintain such low temperatures. One promising alternative to this is ammonia, which is attractive due to its lower storage temperature, higher volumetric energy density, and existing infrastructure and regulatory familiarity. This project will explore the feasibility of using ammonia as a means to provide supply-side flexibility of hydrogen to support industrial clusters and future hydrogen pipeline developments.	ARUP	
SIF_WWU_2_4	Hydrogen-Enhanced Biomethane for Energy System Resilience	Biomethane from anaerobic digestion is currently injected into gas distribution networks (GDNs) as a renewable alternative to fossil-fuel based natural gas. This project will use biomethanisation, injecting hydrogen to convert additional carbon dioxide within digesters, to boost biomethane output dynamically, supporting network balancing and net zero ambitions.	Hydrostar	
NIA_ WWU_02_111	Delocalised Hydrogen Storage	The aim of this project is to explore the role of decentralised hydrogen storage in supporting network flexibility and resilience during the early phases of hydrogen rollout. The project will assess suitable technologies, their feasibility, and how they could integrate into the gas network.	DNV	
NIA2_SGN0088	IGEM Hydrogen TD/1 and TD/13 Supplements Review	The IGEM Hydrogen TD/1 and TD/13 Supplements Review project will review and assess evidence for the updates required to TD/1 and TD/13 based on findings from completed hydrogen research projects. It will also develop a methodology for fracture and fatigue assessments for existing natural gas pipelines to be repurposed to hydrogen.	IGEM	
NIA_CAD0149	Weld Residual Stress – Phase II	Weld Residual Stress project (NIA_CAD0112) conducted a literature review across similar industries to identify whether the 110% specifed minimum yield strength is unnecessarily conservative. Phase 2 seeks to demonstrate the reductions in weld residual stress assumptions that have been suggested by Phase 1.	DNV	

Whole-System Pathways

To facilitate and innovate towards whole system optimisation with the wider energy industry and ensure that the role of gas is built into any regional and strategic planning activities.

Project reference	Project name	Description	Partner	Link
NIA_ WWU_02_103	H2 Power – Whole Systems Implications	This project will address the increasingly stringent requirements set out for the justification of whole system benefits associated with new gas network infrastructure projects by designing and building a model to support the development of our HyLine assets. The model would be applied at the pre-FEED stage to help inform feasibility and justify the down selection of routes alongside upstream, midstream, and downstream connection points.	Frontier	
NIA_WWU_02_98	Energy Explorers	Wales & West Utilities will work with We The Curious to create an exhibit at its science centre in Bristol that aims to help visitors of all ages discover the different renewable sources of energy, understand how they work, and explore why a balanced mix of energy solutions is essential to transition away from fossil fuels. Designed as a social and collaborative experience with multiple interaction points, the exhibit will highlight that shaping a sustainable energy future requires teamwork – across technologies, communities, and generations.	We The Curious	

If you have an idea that aligns with our key themes, please contact us >

Planned projects

Part 1-of-2

Digital by Default

To promote the use of open, interoperable data and digital tools to make every decision smarter, faster, and more transparent.

Project name	Description
Future Asset Resilience Mapping	GIS based project designed to assess environmental risks, infrastructure vulnerabilities, climate resilience and adaptation opportunities across the network. The project will involve gathering geospatial, physical and environmental datasets and overlay these datasets with different climate scenarios to see impact of climate change across our network to generate a risk heat map of our network and complete an asset vulnerability assessment.
ENHANCE	This project will develop a suite of network integration and optimisation tools for the integration of nuclear energy as a multi-vector energy source in the net zero energy transition, increasing system resilience and reducing cost to consumer.
Pipeline of Knowledge	An interactive and practical way to communicate the day-to-day intricacies of operating the gas network. This one-stop shop will help to accelerate communication between different teams within NESO, and ensure we are getting a consistent message across.
Project Repository	Expand the existing LLM tool to support RIIO-3 planning through real-time analysis of our strategic framework to identify project gaps through integration of RIIO-2 projects across GDNs, alignment of objectives and automation of new project proposals which translate into final scope determination.

Equitable Energy for Everyone

To deploy innovation to ensure that our customers in vulnerable situations are not left behind during an energy transition and they have access to the technology and tools to reduce energy consumption.

Project name	Description
Warmth of the Community Phase Two	Project working with Caerphilly Council to deploy a hybrid heating system on a domestic scale. And also option for communal hybrid heating solution for larger stock areas of Caerphilly Council.

Flexible and Seamless Connections

To enable a clean, resilient gas future by connecting, blending and transporting more green gases and facilitating new, flexible demand side applications.

Capacity Heat Mapping	Certain areas of the network have seen a high level of interest in network entry (typically biomethane) connections, and are at or close to saturation point. Smart Pressure Control and Reverse Compression solutions are being implemented, but may not be sufficient to achieve the full potential. The networks have shared pipeline mapping with customers to help identify connection locations, but have no way of indicating capacity, which could help target unconstrained areas. This project will explore the use of flow or demand data to establish a repeatable, easily updated approach for quantifying capacity on specific subsystems within distribution networks.
Project GRID (Green Renewable Integration for Data & Transport)	A feasibility study to assess the potential for data centres to utilise biomethane as their primary energy source. The project seeks to assess the role that Wales & West Utilities and the other GB networks could play in facilitating the connection of biomethane producers and data centres, while also maximising the green gas within the network.
The Green Molecule Project (GMP)	A power to gas (P2G) project proposal to decarbonise the UK gas network, using curtailed offshore wind energy for the production of renewable methane. This is achieved by developing a brand-new integrative technology that combines electrolysis, direct ocean carbon capture and methanation.

Continued >

Planned projects

Part 2-of-2

Reducing our Environmental Footprint

To reduce the environmental impact of our businesses through advanced detection and remedy whilst investing in low-carbon construction and maintenance technology.

Project name	Description
Low-Carbon Gas Sites	Gas pre-heating is common practice across networks. This project will look to identify current gas demand on our network through pre-heating and subsequent emissions, with a view to looking to alter existing sites to low-carbon alternatives, with a focus on biomethane transported and stored on site or hybrid gas/heat pump solutions.
CNG Feasibility for HGVs	This project will explore the use of CNG/biogas to fuel HGVs and reduce life-cycle carbon.
LPG to Biomethane Conversion	Decarbonising the statutory undertaking of LPG villages is a difficult task. Given the rural nature of the villages and the innovation around biomethane production, a feasibility study looking at the conversion requirements for the network and end users as well as the potential for biomethane production in the areas is needed. The project will look at the existing network from a network analysis perspective (Wales & West Utilities) to understand any restrictions from a change in gas. The end user conversion will also need to be looked at to ensure that there are alternative appliances for all the LPG appliances within the village as well as looking at the complexity of conversion.
Knapton H2 Storage for H2P	This project will build on the successful NGN SIF Discovery project which explored medium and large-scale hydrogen storage options to support Centrica's H2P project at Knapton.
Green Anchor	The project will focus on demonstrating how growing biomethane volumes within the gas distribution networks can be converted into marine-grade bio-LNG at port locations, creating a direct and scalable link between renewable gas supply and maritime fuel demand.
On Board Power Project Phase 2	Data Log sample of onboard power vehicles (real-world data urgently required) – the ouput would be to revisit the report from current project utilising new data. WP4 from current project will identify this requirement.
Safe Settlement	As part of the recent Lessons Learnt phase 2 briefing to OFGEM a question was asked: "If large diameter mains are decommissioned, is there evidence of subsidence/sinkholes as a result of their inactivity". This project will identify large diameter mains that have been decommissioned to evaluate the impact this has had on the immediate surrounding area. Mains can be categorised based on diameters/material/age/soil type to demonstrate if issues have arisen.
Pipeline Revalidation using Quantum Sensors	Using Quantum sensors on a pipeline inspection gauge we could look to revalidate P18 pipelines meaning they are then suitable for repurposing in the future. This would also increase our knowledge of the asset condition and long-term integrity of the pipelines. This project is needed to increase long-term asset integrity. A lot of pipelines have welds of unknown quality on them. This project would allow us to revalidate these.
Project GHOST	Develop a clear, evidence-based understanding of the technical, economic and strategic opportunities for GDNs to support the resilience of low-carbon heat networks.
Low-Carbon Supply Chains for the Energy Transition	To develop a whole project embodied carbon baseline methodology for pipeline schemes (using HyLine Cymru as a case study) and identify design, construction, and supply chain interventions that could materially reduce lifecycle emissions and cost before investment or delivery decisions are made.
Project Evergreen Follow on	Project to look at parts of the network which may be deemed redundant as natural gas demand drops through the energy transition. Explore options for a range of repurposing options for those pipelines.

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