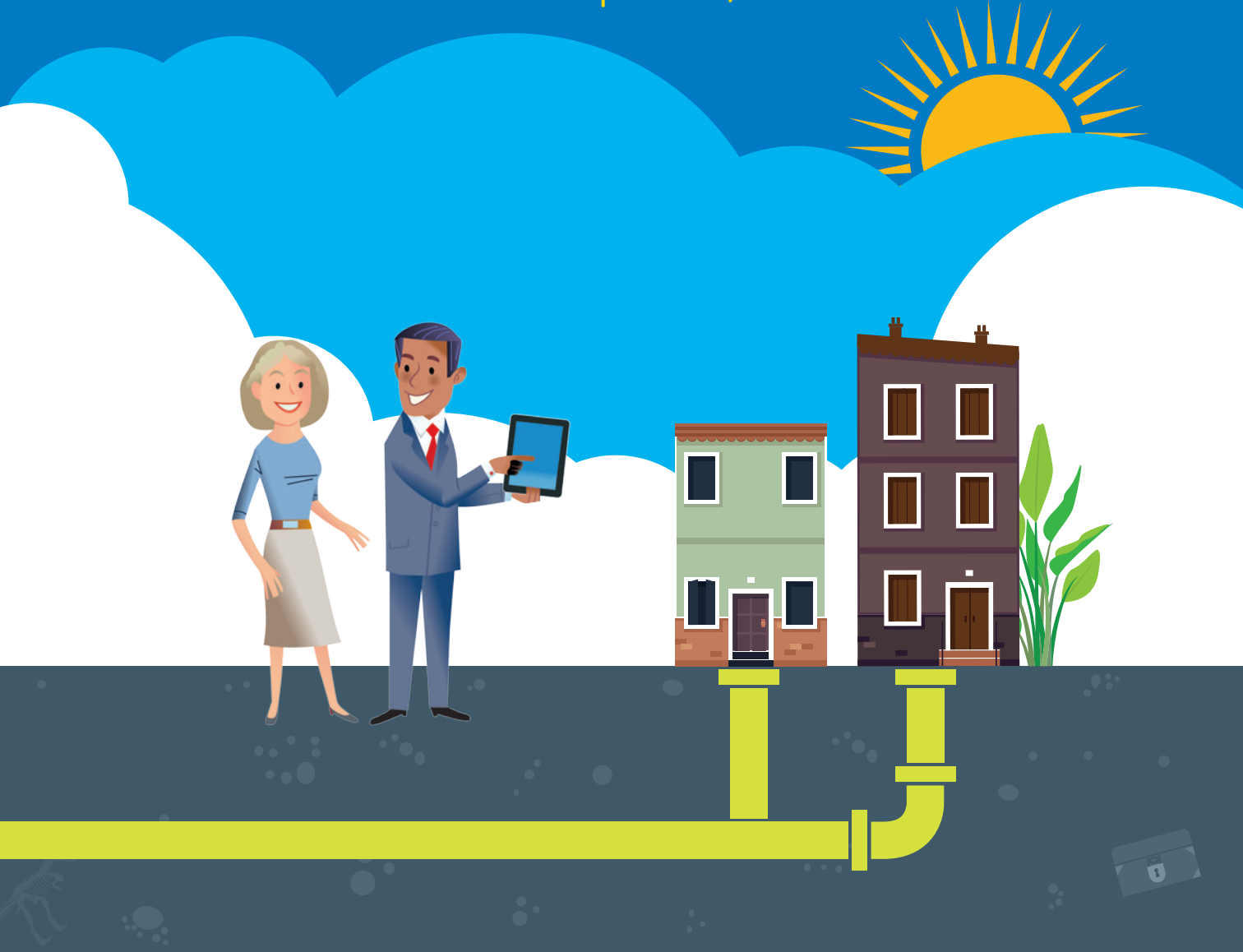


# Innovation for today's and tomorrow's customers

Wales & West Utilities Innovation Report 2016/17



# Innovating for today's and tomorrow's customers

We put our customers first. It's a core value of our business. They rely on the safe and reliable gas supply we provide, and expect us to work hard to keep the gas flowing today and prepare our gas network to play its part in a future affordable, secure and low carbon energy system.

In 2016/17, we've invested more than £1.8 million on 34 innovation projects, an increase of £0.8 million on last year. This report outlines our progress on these projects – supported by Network Innovation Allowance (NIA) funding. NIA funding has delivered very real successes, and as an industry we must do all we can to continue this.

For several years a significant amount of our innovation spending has been focused on the future role of gas, and I remain proud of our accomplishments in this space. Underpinned by research work delivered thanks to NIA funding in Bridgend and Cornwall, our unique energy simulator gives insight into the future energy landscape, helping local, devolved and national government make future energy policy decisions in a customer-focused and sustainable way. Meanwhile, operational improvements, like the latest in our developed pipe cutters and better, more efficient and effective ways of finding gas leaks, are helping us deliver outstanding service to our customers today.

This year has seen us continue our range of successful innovation partnerships. Not only are we working with other energy networks including electricity distribution network operators, businesses large and small, academia and the Energy Innovation Centre, we also continue to work closely with the Welsh Government as an innovation anchor company. Since 2013, we have participated in projects with more than 70 different partners.

While there's no "one size fits all" answer to the energy trilemma – supported by our research and innovation projects, and underpinned by our unique energy simulator, our view of the future remains clear. Gas has an essential role in a future energy mix, to help to deliver an affordable, secure and low carbon energy system.



Graham Edwards

NIA funding has delivered very real successes, and as an industry we must do all we can to continue this

## Our year at a glance



### Contents

Our strategy and team	04
Innovation for customers today	08
Innovation for tomorrow's customers	12
Learning and sharing	14
Looking ahead	18
Annual project summary	18



# Our strategy

Our strategy is simple. We innovate to make sure we can deliver the highest possible levels of safety, reliability and service for today and tomorrow's customers.

For today's customers, our innovations have helped us deliver outstanding levels of customer service: reducing the disruption from our essential work while making us more efficient and cost-effective and our network more resilient.

And for tomorrow's customers, our research projects and partnerships make sure we play our part in delivering reliable energy at affordable costs for customers, while helping the UK meet its decarbonisation targets.

With a small innovation team supported by a large delivery team (that's all of us!) our innovation is driven by our five business priorities which reflect the stakeholder outputs we deliver as well as making sure we meet the needs and expectations of all our customers and stakeholders today and in the future.

During 2016/17 we have continued to evolve our innovation portfolio while investing a further £1.8m on innovation activities using NIA funding that will help us to harness knowledge, expertise and potential to meet the challenges of the future.

£4.8m total investment in innovation since 2013

These challenges can be summarised as:

- Delivering a smart, reliable, low cost and low carbon network to meet the future energy needs of our customers
- Supporting customer needs and expectations in a changing environment
- Effectively managing an ageing infrastructure to keep the gas flowing to our customers' homes and businesses
- Continuing to review, develop and demonstrate technological advances to keep our colleagues and customers safe while delivering value for money.

# Our team

## Governance and delivery

During the year, a total of 148 new innovation project ideas were submitted to our team for review and evaluation. These ideas became 15 new projects using NIA funding as well as 14 projects which were supported by other means including self-funding to demonstrate the new equipment, materials and technologies in a real world environment. This demonstration is vital if benefits of innovation are to be realised.

Before being selected for development, we first review potential projects against our business priorities to make sure they're worthwhile. We then consider their ease of implementation versus potential benefits for the customer. This is done by our Innovation Committee – as well as our Innovation Steering Group made up of several of our executives and senior managers. This group also reviews the quality and effectiveness of our ongoing innovation portfolio.

This thorough process and ongoing monitoring makes sure that every project we select for development has the potential to provide real benefits to our customers.

Collaboration is central to delivering our business innovation

This thorough process and ongoing monitoring makes sure that every project we select for development has the potential to provide real benefits to our customers

Engaging SMEs on our industry challenges at the LCNI conference



We are proud that two thirds of our NIA project portfolio since 2013 has been delivered in collaboration with one or more other network licensees

strategy. We are proud that two thirds of our NIA project portfolio since 2013 has been delivered in collaboration with one or more other network licensees. We are now working with more partners than ever before. Since 2013, we have formed relationships with more than 250 organisations like

suppliers, academia and businesses of all sizes. We continue to facilitate collaborative innovation within the energy sector alongside our own contractors and other utility companies.

Working with partners is important to help us deliver innovation with tangible benefits for our customers and the industry. An “alternative Emergency Control Valve (ECV) exchange kit” project, completed this year with Northern Gas Networks and the Energy Innovation Centre (EIC), is an operational innovation that allows us to exchange a customer’s ECV without isolating their supply. This project was identified, designed and developed by a call for innovation through the EIC.

The open and transparent process generated interest and action from other manufacturers who have also produced competitive

solutions to the same problem – helping us deliver value for money to our customers.

We have shared our project successes and learning experiences with other networks and industry in the UK, as well as other organisations further afield. This approach has benefited a wider market. The Ductile Iron mains cutting tool (NIA\_WWU\_013), which we designed and developed alongside Steve Vick International has not only been bought by three out of the four UK networks, it has also reached gas networks in the United States of America and Australia.

Our colleagues are fully engaged in challenging and shaping our future too. We have a voluntary team of innovation champions who endorse our innovation strategy and advocate the continual growth

and development of an innovative culture at Wales & West Utilities. They work closely with our innovation team supporting the implementation of solutions designed to deliver for our customers. We are proud that a significant source of innovation is from our colleagues – more than 40% of ideas come from our Wales & West Utilities colleagues.

Supporting the delivery of our innovation strategy is the EIC. They promote the work we do and deliver a pipeline of ideas and new technologies from across the world. We are also one of eight organisations to be part of an open innovation programme developed by the Welsh Government to reach

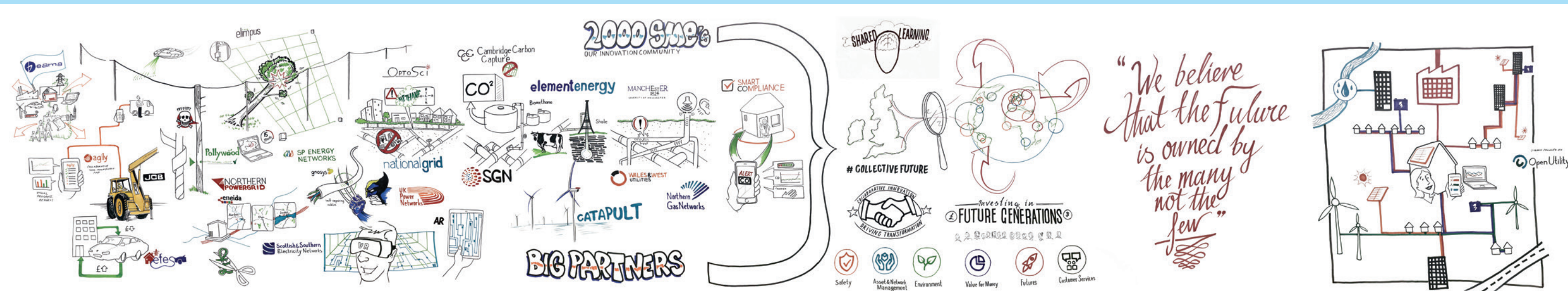
out to the huge pool of talent that exists in Wales to help tackle our key business challenges.

We focus on innovation to drive business efficiency and make the best use of our available resources to target problems through engagement with external organisations. We share our challenges by launching calls for innovation on specific problems, publishing our industry challenges and taking opportunities to communicate these challenges at events and workshops.



# Why innovate?

The energy sector continues to be dynamic and constantly changing. Innovation, supported by incentives, is essential to meeting the challenges of the future. Our sector is undergoing rapid and significant change and we recognise the importance of challenging ourselves and others within our sector to find better ways of doing things. It is helping us support a sustainable integrated energy solution by providing a safe and reliable gas network that delivers best value and excellent service for our customers today and in the future.



The EIC Big Picture: a live illustration captured by the EIC



# Innovation for customers today

## Now is the time to innovate

We put our customers first, and target innovation to deliver value for money and real results for our customers. Our values have helped innovation thrive, with 62 NIA projects started since 2013/14.

We've invested £1.8 million across 34 innovation projects in 2016/17 with funding from the NIA scheme. Not all of our projects have been successful but we have learnt from each and this has helped us deliver for our customers in the long term. The incentive funding has allowed us to pursue a number of solutions to real problems including:

- In 2013/14 we pursued Iron Mains Condition Assessment tools in order to improve safety, and to plan our gas main replacement programme better.
- In 2014/15 we developed Ductile Iron Window Cutters which mean we can cut into old metal gas mains quicker during replacement programmes to keep disruption to customers and road users to a minimum.
- In 2015/16 we developed the Smart pressure sensor which gives our engineers a digital measurement of test and installation pressures to improve safety and deliver consistent reporting.

In 2016/17 too, NIA funding has helped us deliver for customers of today.



## Drones!

### BACKGROUND

They've taken film and photography to new heights, have been heralded as the next big thing in delivery services and now drones are set to help us survey our pipelines and network faster, easier and cheaper than ever before.

Surveying is a vital part of making sure our assets are properly protected and maintained. Until now, surveys have been carried out using ground-based methods like scaffolding or specialist cherry pickers. This can be costly and time consuming.

In March 2017, we finished our five-month project to assess and report on the suitability of using drone technology to do condition surveys on above ground pipes within visual line of sight – a flight distance of less than 500 metres from the pilot.

### KEY BENEFITS

- We understand the strengths and weakness of drone surveys against traditional techniques – particularly on how the survey data is monitored, managed and acted upon.
- We demonstrated the benefits of drone surveys for areas that were difficult to access and collected survey data in difficult environments including an estuary and a railway bridge.

### NEXT STEPS

- Asset inspection is a challenge for all infrastructure providers – so the outcomes of this project will be shared with other gas networks as a first step.
- Drone technology offers huge potential for both gas and electricity networks. We hope to collaborate to explore the use of drones to survey beyond visual line of sight, potentially to replace helicopter flights that look for contractors working in the vicinity of our pipes and help us make sure we keep our network safe and secure.
- Further consideration will be given to the comparative strengths and weakness of in-house training to fly drones versus an outsourced service framework.

## Projects

### RAPID STEEL PIPE CUTTER

#### KEY FACTS:

**Finished** – October 2016

**Collaboration** – Wales & West Utilities only

#### NEED

We want to use the most efficient methods of replacing our old metal gas mains.

#### CHALLENGE

To develop a hand-held tool that will safely, swiftly and successfully cut through steel pipes without damaging the newly inserted PE pipe to give improved value from our essential gas mains replacement work.

#### IMPACT

Reduction in the size and duration of our street works activities that affect our customers – minimising disruption and reducing cost. Like our successful 2015/16 Ductile Iron Window Cutters (now in use across our network, other UK gas networks and also being used abroad), Steel Cutters will help us include more pipes in live insertion projects.

Delivering  
**VALUE**  
for Money





Projects

PORTABLE GAS READING EQUIPMENT (PRE)

**KEY FACTS:**  
Finishes – January 2018  
Collaboration – Wales & West Utilities only

**NEED**  
We want to use advanced technology to find gas leaks on our network safely and quickly.

**CHALLENGE**  
A series of trials of three different gas leak detection tools to understand if they are better than current equipment used to find gas leaks in a variety of applications.

**IMPACT**  
Improvement of methods of gas detection, allowing our colleagues to find and fix leaks quicker, therefore reducing the volume of gas leakage and keeping the communities we serve safe.

Demanding  
**SAFETY**  
always 

OPTOMOLE PHASE 4

**KEY FACTS:**  
Finishes – January 2018  
Collaboration – Wales & West Utilities, NGN and Cadent

**NEED**  
We want to use new technology to help us find the source of gas leaking into other utility ducts.

**CHALLENGE**  
To test innovative laser and fibre optic technology, and demonstrate its ability to locate gas leaks in underground utility ducts quickly and accurately – reducing excavation and repair cost.

**IMPACT**  
Reduction of the cost and duration of work needed to find the source of and stop gas leaking into utility ducts allowing us to fix the leak quicker, therefore reducing the volume of gas leakage.  
  
Minimising the impact of our work to find gas leaks on our customers.

Driving  
**OUTSTANDING SERVICE** 

GPS ENABLED VIDEO IN ROUTE-WALK SURVEYS – surveys using body cameras

**KEY FACTS:**  
Finishes – November 2017  
Collaboration – Wales & West Utilities only

**NEED**  
We want to test emerging technology to improve the quality and availability of our field survey records.

**CHALLENGE**  
To develop and field test software that allows us to create a video map to record our survey activities.

**IMPACT**  
Development of a comprehensive digital platform providing improved quality and availability of survey records, reducing site visits and providing a robust audit trail.

Demanding  
**SAFETY**  
always 



“Cutting into ductile iron mains has always been a challenge. It’s a real positive that the ductile iron mains cutter is now operational and embedded right across our business. With one in each of our operational areas – and many more on order, it’s not only making our job a little easier, it’s also making sure as many customers as possible can receive the benefits of live mains insertion – replacing their old metal gas pipes while keeping disruption and time off gas to a minimum.”



# Innovation for tomorrow's customers

## The future is now

With more than 80% of heat and power demand at peak times currently met by the gas network, we're planning for the future – to make sure we continue to deliver reliable energy at affordable costs for customers, while helping the UK meet its decarbonisation targets.

We're already playing a part in decarbonising heat, with 16 biomethane sites injecting enough

green gas into the Wales & West Utilities network to meet the demand of 90,000 homes.

There has been a marked increase in the number of research and demonstration projects in the energy futures space since 2013. In 2013/14 we had just one project in this category – but today more than 60% of our NIA funding has been committed to innovating for the

customers of tomorrow.

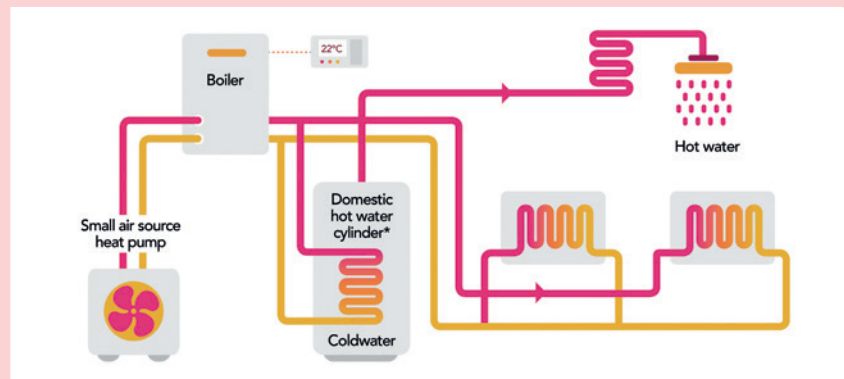
A vision of the future is emerging. Our research has told us that the full electrification of heat comes at an excessive cost. We are committed to, alongside partners, delivering an energy future that addresses the UK energy trilemma: providing consumers with affordable, secure, and low carbon energy.

## Freedom

### BACKGROUND

We are proud to be playing a leading role supporting a shift change to a flexible, integrated energy network – with gas and electricity networks working closely together to support the decarbonisation of heat.

Testament to this is Freedom – a unique demonstration project being pursued in collaboration with electricity network Western Power Distribution and a consortium of project partners led by PassivSystems. This £5.2m innovation project is an industry-first cross-sector collaboration project investigating a whole energy system approach. It builds on our Bridgend Future Modelling series of projects delivered in the third year of the NIA funding scheme. They sought to create a vision of what a future energy network might look like. Freedom is one part of this, bringing efficient integration into the home by installing a hybrid heating system and contributing to carbon reduction targets.



### KEY BENEFITS

- It could provide an affordable, secure and low carbon solution.
- A novel heating system that could provide energy savings and reductions to customers' bills.
- Freedom's whole energy system approach provides flexible demand side response which benefits network operators by reducing network reinforcement requirements.

### NEXT STEPS

- Following approval of our customer engagement plan, we have selected the equipment to be used for the trials and

completed pilot installations in four households in Bridgend, south Wales.

- We have started to install a further 71 hybrid heating systems in a range of housing types and ages across Bridgend between June-September 2017.
- Customers will manage their heating requirements via a custom-made app that has been thoroughly tested for usability.
- Further develop network infrastructure models to analyse the impact that Freedom could have on the gas and electricity networks.

## Projects

Designing

OUR FUTURE

### CLIMATE CHANGE IMPACT MAPPING

#### KEY FACTS:

**Finishes** – July 2020

**Collaboration** – Wales & West Utilities only

#### NEED

We want to understand and model the impact of climate change on our network so we can keep the gas flowing to homes and businesses in the future.

#### CHALLENGE

To develop a suite of unique, innovative mapping layers that will provide insight into future flood hazards and their impact on our network infrastructure.

#### IMPACT

Mapping to support more effective and efficient long-term asset investment planning to allow proactive, low cost interventions and a network resilient to climate change.

### FLEXIBLE ENERGY SIMULATOR

#### KEY FACTS:

**Finished** – February 2017

**Collaboration** – Wales & West Utilities only

#### NEED

We want to build a user-friendly energy simulator that models energy supply and demand balance.

#### CHALLENGE

Deliver a simple, flexible energy simulator that can be used to assess different energy supply scenarios, supporting evidence-based public policy and future investment policy for energy networks and other utilities.

#### IMPACT

The simulator provides leading industry insight into future energy scenarios.

### WORKING WITH UNIVERSITIES – Flexible biomethane production using carboxylic acids

#### KEY FACTS:

**Finishes** – January 2020

**Collaboration** – Wales & West Utilities only

#### NEED

We want to investigate a cost-effective and flexible method of storing biomethane.

#### CHALLENGE

Determine if it is feasible and cost-effective to implement a novel concept of energy storage based on carboxylic acids.

#### IMPACT

Allow flexible biomethane production to meet gas demand throughout the year.

### H21 LEEDS CITYGATE

#### KEY FACTS:

**Finished** – January 2017

**Collaboration** – Wales & West Utilities and NGN

#### NEED

To see if the existing gas network in cities could transport hydrogen to help decarbonise heat.

#### CHALLENGE

Research the challenges, benefits, risks and opportunities of converting a major UK city to hydrogen using the existing gas network.

#### IMPACT

Learning from this project has suggested that using the existing gas network to distribute hydrogen is feasible and could play a key role in the future energy mix. It has been followed by a £15m Network Innovation Competition bid in collaboration with all Gas Distribution Networks to demonstrate the safety of using hydrogen in the existing gas network.



# Learning and sharing

## PROJECT DELIVERY

In the past 12 months we have expanded our innovation team, (though it remains small) and focused on improving our project management and implementation processes. We are committed to embedding innovation, and have updated our processes to make sure this happens. Through our experience, we have learnt that positive project outcomes are linked to the speed in which they are formed, demonstrated and assessed.

We have produced an innovation management toolkit, adapted from Change Management Expert John Kotter's processes to fit our needs. This uses a range of tools and techniques that produce clear project strategies and plans, engages stakeholders in our vision, encourages project success and supports the roll-out of equipment, products, research findings and procedures. It will help us to manage projects effectively to give them the best chance of success.

## INSIGHT

Innovation plays an important role in helping us to design our future at Wales & West Utilities and getting colleagues involved in scoping, developing and testing new ideas is vital in embedding it as business as usual. To support this aim, in September 2016 we surveyed colleagues across our business and 47% gave us their feedback on what we could do to improve

The kick-off workshop facilitated by Wales & West Utilities was a well-organised and extremely positive session. A defined project strategy was set out, ensuring all stakeholders had a shared vision. This was imperative as it established what success would look like at the end of the project and beyond. Giving everyone the confidence of a well-managed, successful project. Implementing projects in this way fosters an innovative approach from all parties both in terms of process and product.

Louise Early, Crowcon

results, identify the barriers that get in the way of people providing high-quality innovative ideas, recommend what could be done to overcome the barriers and to discuss the concept, role, skills and behaviours needed for effective innovation champions across our sites and offices.

The survey gathered valuable insight into the effectiveness of our processes, the impact of our projects and how well project progress information is communicated. We scored good or very good 78% of the time – a great set of results.

The highest scoring area was “projects that have been implemented are improving the reliability of our gas supply and help the environment” with 95% of respondents rating this good or very good. Also scoring 95% was “our innovation team members are easy to work with”.

The lowest score, with 45% of respondents rating it good or very good was “there are enough ideas being put forward”. Earlier we reported that we had received 148 ideas in the year and this survey score reflects the challenges we face of how and when to communicate both the good ideas and the ones that do not pass the evaluation process.

It is vital that we take the feedback from our colleagues to build on the successes and to ultimately support an effective transition for the innovation process as well as our projects to business as usual.

## BENEFIT TRACKING

Since 2013, we have completed 47 NIA projects with a total investment of £4.8m. These projects span the recognised methods of research, development and demonstration and 27% of our project portfolio has matured to the technology readiness levels of 7 or 8 – a level 9 is described as a technology that has been proven.

Clearly, an important benefit of the NIA programme is the ability to share project benefits with others. A particular focus this year has been to assess other implemented projects to identify any benefits for our customers and colleagues. The results of this review

highlighted that there are projects that we want to adopt and projects that we want to learn more about, but there are also projects that appear to have limited benefits for our network due to differences that exist, for example in our asset base or in the geography or demographics of our network area.

## IMPLEMENTING PROJECTS FROM OTHERS

We have built stronger relationships with both gas and electricity networks over the past four years, and we continue to work together to implement projects that have been successfully rolled out by

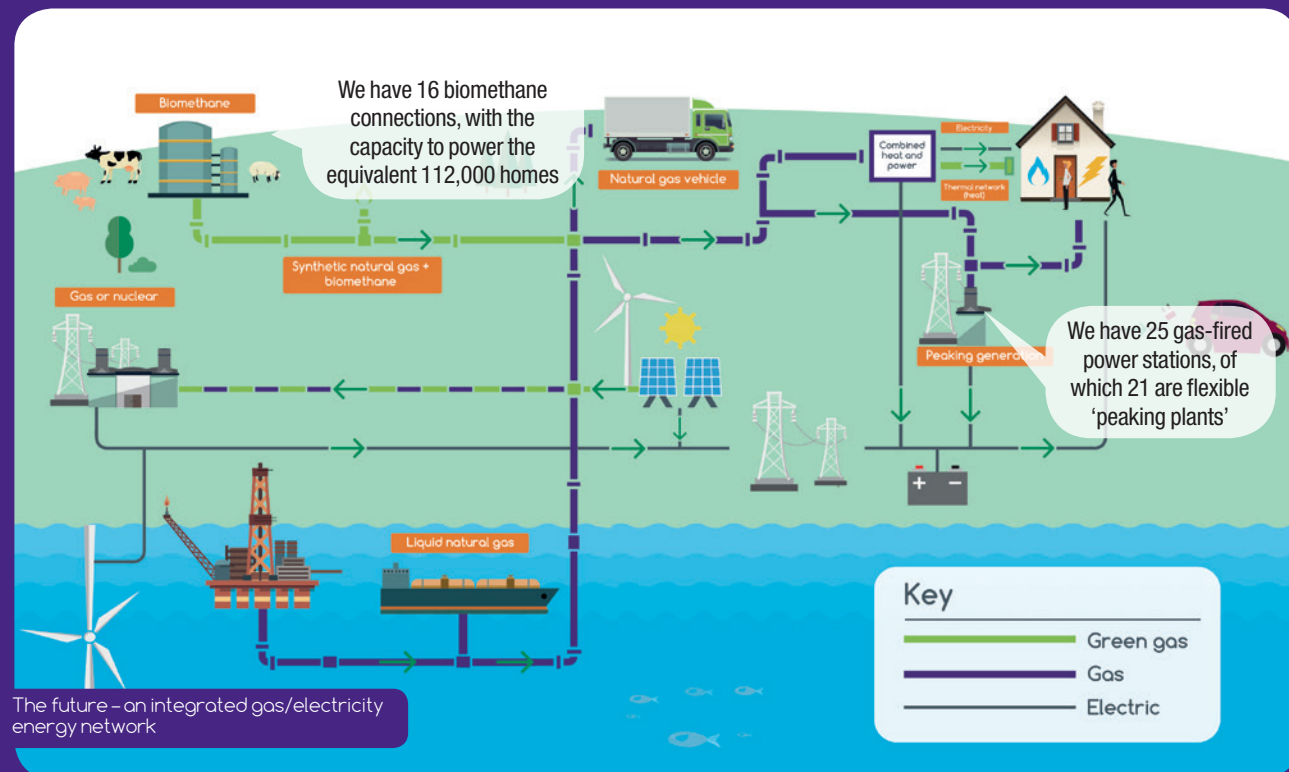
others and could deliver benefits for our customers too. Some examples of innovation projects that we have adopted from other networks are Cadent's Fence Feet, SGN's Osprey Pressure validators and NGN's Stub end abandonment project.

We have completed a full review of all projects registered on the NIA project portal and identified 10 that have been rolled out by other UK gas networks that we want to adopt. We'll be working closely with those networks to review projects such as SGN's CISBOT, that allows a repair to the pipe joints using robotic technology, examine their value for money analysis and consider the benefits they could bring to our customers.



SGN's CISBOT allows repairs to pipe joints robotically





## CO-ORDINATED RESEARCH

The gas networks are essential to providing affordable heat for customers. We have invested in research to shape understanding and build acceptance of the role and importance of gas networks in delivering the integrated, affordable, low carbon energy system that the UK economy and UK energy customers need. We are working closely with other utility networks to maximise project learning, considering a range of different technologies and implementing strategies to decarbonise gas now.

## OUR SUCCESSES

We were proud that two of our projects have won awards. The Flexible Energy Simulator won the IGEN Gold Medal award and the

Reuse of Gasholder Sludge (NIA\_WWU\_016) won the Brownfield Briefing Award for the Best Use of a Combination of Remediation Techniques – for applying a range of technologies to overcome a significant technical challenge in its treatment.



During the year, we have done more to connect with the innovation community and in listening to their feedback we have refreshed our problem statements making them easier to follow. We have used our network of collaborators to reach out to more people and are building relationships to drive collaborative working.



We found Wales & West Utilities to be true 'partners' in the development of innovative solutions. They were able to support the fast-paced and ambitious nature of our project, and together we were able to get to the core issues and attack them in a focused manner.

Iain Chirnside,  
Steer Energy Solutions

Our project partners are always ready to rise to our challenges and make our innovation programme a success.

## SHARING

We showcased 10 of our most successful projects at the 2016 Low Carbon Network Innovation Conference in Manchester. A team of 16 colleagues were among more than 1,300 delegates to share some of our best work at our exhibition stand, at the breakout sessions and within the showcase room, giving us an opportunity to view the latest tools, techniques, equipment and processes developed by other networks and businesses.

Sharing learning is one of the key aims of the innovation stimulus and we have devoted time and effort to make it a success. During the year, we organised our own stakeholder events and



participated in multiple events such as the IGEN annual conference, Utility Week Live and the NJUG conference to share with other network licensees and the industry exciting research findings and new technology to contribute to the overall success of the innovation programme. We also held the UK's first Alternative Gas Workshop, speaking to people interested in getting involved in injecting green gases into our network, and getting their feedback on how we can work together better.





Open me  
for the full  
annual project  
summary





# Looking ahead

Innovation is core to our business strategy. We rely on innovation to drive efficiency, while delivering against all our business priorities and output targets and we will continue to do this in the future. Our strategy will stay the same: innovating for customers today and tomorrow, with an innovation portfolio split between projects that develop solutions to solve today's problems and those that plan for the UK energy system of the future.

There are a growing number of successful projects that have been developed across and beyond the industry that we want to adopt and we will be embracing these projects, working closely with other networks to implement their successful projects in our network where appropriate. We will build on our drive to fully embed our projects to business as usual, making use of our new innovation champions to promote, roll out, communicate and support people as they respond to the changes.

We will be shaping our forward-looking gas sector innovation strategy that embraces our innovation plans for the remainder of this price control period and beyond into the next.

## Annual project summary

NIA reference	NIA_WWU_040	NIA_WWU_043	NIA_WWU_032	NIA_WWU_035	NIA_WWU_031	NIA_WWU_033	NIA_WWU_037	NIA_WWU_038	NIA_WWU_041	NIA_WWU_022	NIA_WWU_036	NIA_WWU_034	NIA_WWU_027	NIA_WWU_042	NIA_WWU_030	NIA_WWU_029	NIA_WWU_021
Title	>7 bar Permanent Leak Repair Clamps	Alternative PE joint preparation	Assessment and benchmarking of low carbon heating technologies	Climate change impact mapping	Cornwall Energy Island	Development of a Risk Based Approach for Safe Control of Operations	Feasibility study – Small Unmanned Aerial Systems	Flexible biomethane production using carboxylic acids	Flexible Energy Model	Gas CHP Impact Study	GPS Enabled Video in Route-Walk Surveys	Leakage Sealant Standards	Orbis Oxifree (TM198) Corrosion Coating	Portable gas Reading Equipment (PRE)	Project Blackout	Rapid Steel Pipe Cutter	SMART Pressure Sensor device
Outline	Understanding current and new methods of repairing the above 7 bar pipeline network to deliver a lower cost and risk solution	Understanding the issues surrounding PE pipe preparation for jointing, and assessing adequacy of new and current techniques	Reviewing emerging heating technologies to detail the cost and carbon savings of each	A full-scale demonstration project to develop climate change impact mapping for the Wales & West Utilities distribution geography	A study to understand the self-sufficiency of localised energy generation and usage	Developing an industry first process for managing operational tasks based on risk	Understanding the suitability of drone technology as a viable alternative to our current surveying techniques	Researching a novel concept of energy storage to allow for flexible biomethane production in various networks throughout the year	Building a simple, user-friendly energy simulator to model energy supply and demand balance	Understanding the benefits and challenges presented by the technology	To establish the feasibility of incorporating GPS embedded video data in different survey functions within a gas utility	Designing and developing new standards for innovative pipe repair solutions	Validate Orbis Oxifree Corrosion Prevention Coating's suitability for use on gas networks	A research project to explore three new techniques for surveying and detecting gas leaks	Designing and developing a solution to manage flow at offtake stations if there is a power outage	Designing and developing a prototype cutter for steel mains	Developing a pressure sensing device that will allow digital measurement of test and installation pressures
Status	Live	Complete	Complete	Live	Complete	Live	Complete	Live	Complete	Complete	Live	Live	Complete	Live	Complete	Complete	Complete
Collaboration between	Wales & West Utilities	Wales & West Utilities, NGN	Wales & West Utilities	Wales & West Utilities	Wales & West Utilities	Wales & West Utilities, SGN, NGGD, NGN	Wales & West Utilities	Wales & West Utilities	Wales & West Utilities	Wales & West Utilities, NGN	Wales & West Utilities	Wales & West Utilities, SGN, NGGD, NGN	Wales & West Utilities	Wales & West Utilities	Wales & West Utilities	Wales & West Utilities	Wales & West Utilities
Completion date	October 2017	April 2017	April 2016	July 2020	July 2016	October 2017	March 2017	January 2020	February 2017	February 2017	November 2017	February 2018	May 2016	January 2018	July 2016	October 2016	May 2017

NIA reference	NIA_NGN_119	NIA_NGN_118	NIA_NGN_114	NIA_NGN_142
Title	Alternative ECV Exchange Kit	CO <sub>2</sub> Capture through mineralisation	H21 Leeds Citygate	Project Concur
Outline	To design, develop and trial a new method to exchange a fitting	Demonstrating the feasibility of a new way of capturing carbon from renewable gas	Studying the possibility of converting a major UK city to hydrogen using the existing pipes and equipment	Investigating the feasibility of collaboratively improving customer service for the sector
Status	Complete	Complete	Complete	Complete
Collaboration between	Wales & West Utilities, NGN	Wales & West Utilities, NGN	Wales & West Utilities, NGN	NGGD, NGN, NP, SPEN, SSE, WWU
Completion date	September 2016	June 2016	April 2017	June 2016

NIA reference	NIA_NGGD0094	NIA_NGGD0007	NIA_NGGD0087	NIA_CAD0002	NIA_NGGD0059	NIA_NGGD0032	NIA_NGGD0056	NIA_NGGD0068	NIA_NGGD0072
Title	Composite Repairs to Complex Shapes	Development of DANINT FWAVC software for New Gas Chromatograph	I-0052 Optomole Phase 4	Impact of Biomethane on Gas Networks	Impact of Distributed Gas Sources on the GB Gas Network	Intelligent CO Monitors	Network Outperformance Measure Risk Trading Methodology	Network Outperformance Measure Risk Trading Methodology Stage 2	Project Futurewave – Phase 3 (Pilot)
Outline	Investigating the feasibility of novel composite repairs technology for the repair of complex pipeline geometries	Reviewing and trialling engineering software for data management of gas composition	Testing innovative fibre optic technology to demonstrate its ability to locate gas leaks in underground utility ducts quickly and accurately	A desktop study to review some of the challenges facing the biomethane production industry	Identifying the economic, technical and operational impacts of new gas sources	A trial deployment of Smart Compliance Ltd sensors, which will allow the remote monitoring of CO alarms	Developing processes and practices to measure the value delivered through spend on gas assets	Using the phase 1 process/procedure to assess more asset groups	Develop and pilot the digital platform with UK customers
Status	Live	Complete	Live	Live	Complete	Complete	Complete	Complete	Complete
Collaboration between	Wales & West Utilities, NGGD, NGGT, NGN, SGN	Wales & West Utilities, SGN, NGN, NGGD	Wales & West Utilities, NGGD, NGN	Wales & West Utilities, NGN, NGGD, SGN	Wales & West Utilities, SGN, NGGD	Wales & West Utilities, NGN, NGGD	Wales & West Utilities, SGN, NGN, NGGD	Wales & West Utilities, SGN, NGN, NGGD	Wales & West Utilities, NGN, NGGD, SSE, SPEN
Completion date	November 2018	April 2016	October 2017	November 2017	January 2017	June 2017	December 2016	March 2017	February 2017

NIA reference	NIA_SGN0044	NIA_SGN0094	NIA_SGN0107
Title	Acoustek	Energy Map and Plan	IGEM Gas Quality Standard Working Group
Outline	Investigating the use of sound to detect pipeline features	Researching the energy network of the future	A desktop study to understand how flexible the network can be in relation to gas quality
Status	Complete	Complete	Live
Collaboration between	Wales & West Utilities, SGN, NGN, NGGD	Wales & West Utilities, SGN, NGN, NGGD, NGGT	Wales & West Utilities, NGGD, NGGT, NGN, SGN
Completion date	May 2016	November 2016	January 2020

NIA reference	NIA_WPD_023
Title	FREEDOM – Flexible Residential Energy Efficiency Demand Optimisation and Management
Outline	A demonstration project, building on our Bridgend Future series, investigating a whole energy system approach to achieve carbon reduction targets
Status	Live
Collaboration between	Wales & West Utilities, WPD
Completion date	January 2019



For further information on our projects, including project progress and closure reports, please go to the learning portal at: [www.smarternetworks.org](http://www.smarternetworks.org)





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