

Network Innovation Allowance (NIA)
Annual Summary
1 April 2013 to 31 March 2014
for Wales & West Utilities



Foreword

Here at Wales & West Utilities (WWU), we work in a fast-paced and ever evolving industry. Regulatory changes, a shifting political landscape and the economic climate mean, that if we are to thrive as a business, we need to meet today's challenges and get ready for tomorrow's.

Building on our impressive and established reputation for safety and customer service, we're focused on innovation, value and partnerships.

Our innovation strategy, developed following consultation with a broad range of our key stakeholders, supports our business ambition – to deliver outstanding levels of gas safety, reliability and customer service so that we are trusted and valued by the millions of people we serve every day.

To achieve this, we are focused on continuing to raise the bar on safety; giving our customers a reliable gas service; spending money wisely; protecting and helping the environment and investing in our network, people and future.



Chris Clarke
Director of Asset Management and HS&E



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Executive summary

It's our job to provide the infrastructure to deliver gas safely and securely to 2.5 million homes and businesses across Wales and the south west of England. We do not sell gas, we transport it and more than 7.5 million customers rely on us to do so.

Our dedicated and skilled team manages a network of more than 35,000 kilometres of gas pipes to make sure we continue to provide a safe and reliable gas supply 24 hours a day, 365 days a year. This involves responding to gas emergencies, maintaining and replacing our network, and connecting new customers.

Since the launch of our business in 2005, innovation has played a key role in earning our established reputation for delivering a great service for our customers.

Our approach to innovation, developed following extensive consultation with key stakeholders, supports our important role in achieving a sustainable energy sector, committed to delivering great service and value for money for our customers, both now and for future generations.

To make sure we remain focused on developing innovative ways of doing things, we are embedding a culture of fresh thinking and new ideas across our business. This is being led by our innovation team. This makes sure we carefully manage innovation activities from early concept stage through to project delivery. As a result, we are successfully adopting and harnessing new ideas throughout our business and effectively influencing organisational change continuously to improve the way we work.

Our key achievements – 2013/2014

Throughout the year, our innovation portfolio has included a diverse range of projects focused on delivering benefits for our customers and reducing the impact of our work on people and the environment.

- During the regulatory year 2013/2014, we took part in 14 innovation projects aligned to our innovation strategy and we were the lead gas distribution network (GDN) on seven of them.
- We submitted the first cross sector Network Innovation Competition (NIC) entry to the NIC panel, which included the impacts of injecting renewably sourced hydrogen into our gas network in the south west of England. The panel did not approve the project but praised the intent of exploring future use of hydrogen as an energy source.
- A significant proportion of our innovation in 2013/2014 was linked to developing understanding of the condition of iron mains. This includes assessment techniques to identify strains on pipework to determine their likelihood of failure to a degree of accuracy never previously possible. This will enable more informed, targeted interventions, using new innovative techniques in a more cost and risk effective way.
- The joint venture between Morrison Utility Services and AMEC for our gas mains replacement programme won Best Innovation Implemented or Adopted by a Contractor at the 2014 Energy Innovation Awards. The award recognised the successful introduction of extended length pipe coil trailers that enable up to one kilometre of gas main to be replaced from a single excavation point.

By adopting this approach, we are delivering a number of customer benefits. With less excavations now required, the use of longer length coiled pipe has significantly shortened supply interruptions and reduced disruption for road users. The new technology has also led to a 26 per cent reduction in wasted pipe and reduced our carbon footprint.

Looking ahead, we plan further investment and research focused on tackling today's challenges and developing a sustainable future.

Two examples of 2014/2015 projects are:

- Further research into the properties of iron pipe that may open up improved inspection techniques or alternative replacement with plastic pipe.
- A full scale project to treat sludge from multiple gasholder sites. Treated sludge will be re-used as backfill and will avoid disposal/incineration costs and reduce the volume of imported backfill material to create a cost efficient, sustainable solution for the management of gasholder sludge.



Summary of innovation project progress during 2013/2014

In support of our year one projects, we have invested £0.4 million of Network Innovation Allowance (NIA) funding.

We have collaborated with a number of organisations and successfully commissioned projects through our partnership with the Energy Innovation Centre, a collaborative membership that actively seeks out innovation opportunities.

Building on five existing projects, during this period we received a further 30 innovative ideas for review and assessment. As a result, nine projects were launched. The remaining 21 ideas are currently on hold for us to revisit and evaluate at a future date.

A summary of our 14 innovation projects is listed on page 4. Details of individual projects are available on the collaboration portal www.smarternetworks.org



Project summary

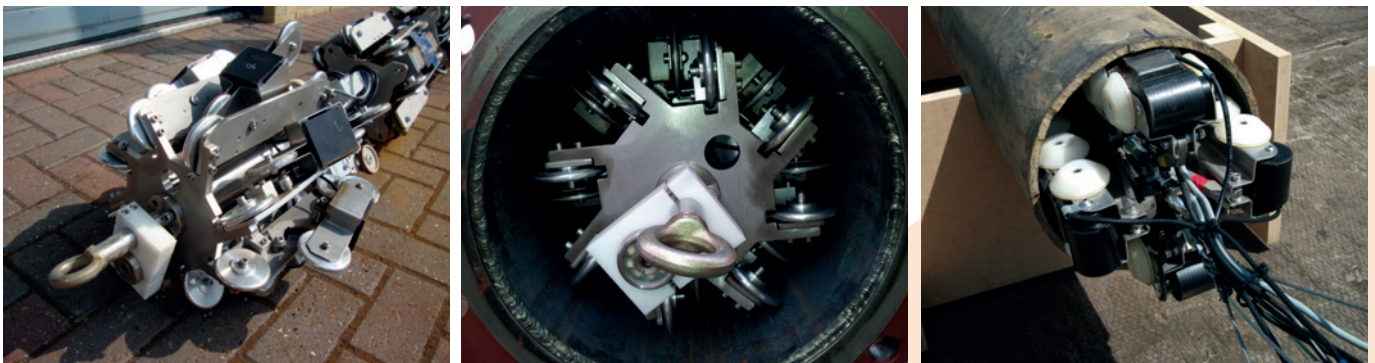
NIA ref	Project title	Summary	Overall status	Cost to WWU in 2013/2014
NIA_WWU_002	ePipe – trial internal lining assessment and development of small diameter pipelines	A demonstration project to assess an internal riser lining system	Completed	£24,977
NIA_WWU_001	Diurnal storage phase 2	A demonstration project to determine the factors that affect storage needs	Ongoing	£93,320
NIA_WWU_009	Investment prioritisation in distribution systems	A research project to identify and recommend transferable practices from the water sector	Ongoing	£9,024
NIA_WWU_006	Asset health and criticality modelling	A research project on a collaborative platform to define consistent Ofgem reporting	Ongoing	£10,686
NIA_WWU_003	Iron mains condition assessment system phase 2	A project to develop the tool from proof of concept further to understand survey speed, length etc	Completed	£45,397
NIA_WWU_007	Iron mains condition assessment system phase 3a	A research project to determine the level of strain at which cast iron mains can be expected to fail and confirm the tool's ability to detect this	Completed	£86,415
NIA_WWU_005	Unconventional gases within the onshore gas networks	The production of a new standard, guidance and report	Completed	£12,678
NIA_NGGD0007	Development of DANINT FWACV software: gas chromatograph	A research to demonstration project to review and trial engineering software for data management of gas composition	Ongoing	£6,229
NIA_NGGD0008	Internal stress corrosion cracking assessment work	A research project to understand the implications of manufactured gas	Ongoing	£16,190
NIA_SGN0023	Cured in-place pipe stage 2	A research and development project to test the available methods of liner for use as a rehabilitation technique	Ongoing	£32,353
NIA_SGN0026	Customer self isolation and restoration stage 2	A demonstration project to analyse the findings of a Health and Safety Executive report and introduce into the networks	Completed	£9,510
NIA_SGN0044	Acoustek	A research, development and demonstration project to investigate the use of sound to detect pipeline features	Ongoing	£2,737
NIA_NGN_049	Technologies and strategies to reduce gas leakage expenditure profile	A research project to understand any transferable practices for leakage management	Ongoing	£9,577
NIA_NGGD00014	Cast iron fitness for purpose	A research project to develop a methodology to assess cast iron mains	Ongoing	£2,181

There were significant investments in diurnal storage and research into the properties of iron mains. Key customer benefits from the first year projects include:

Diurnal storage – investment in 2013/2014 £93,000

- New application Consus has been deployed under a collaborative GDN innovation project to improve and replace the existing diurnal storage manager application. Consus will be used by our > 7 bar network planning team in this year's planning cycle (2014) to assess the storage needed to maintain a reliable network in our local district zones (LDZs) under 1:20 conditions.
- The new system includes an improved maths engine as well as a significantly improved user interface with enhanced data visualisation.
- New methods of viewing the data have already enabled our planning team to remove rogue data for more accurate results. New functionality to assess storage needs away from peak days is also included to improve planning, for example, during non-routine maintenance.
- Finally, as the European Directive “gas day” change was already under discussion when this project started, functionality to re-configure the results to be applicable for a 5am to 5am gas day has also been included.

Iron main condition assessment phase two – investment in 2013/2014 £86,000

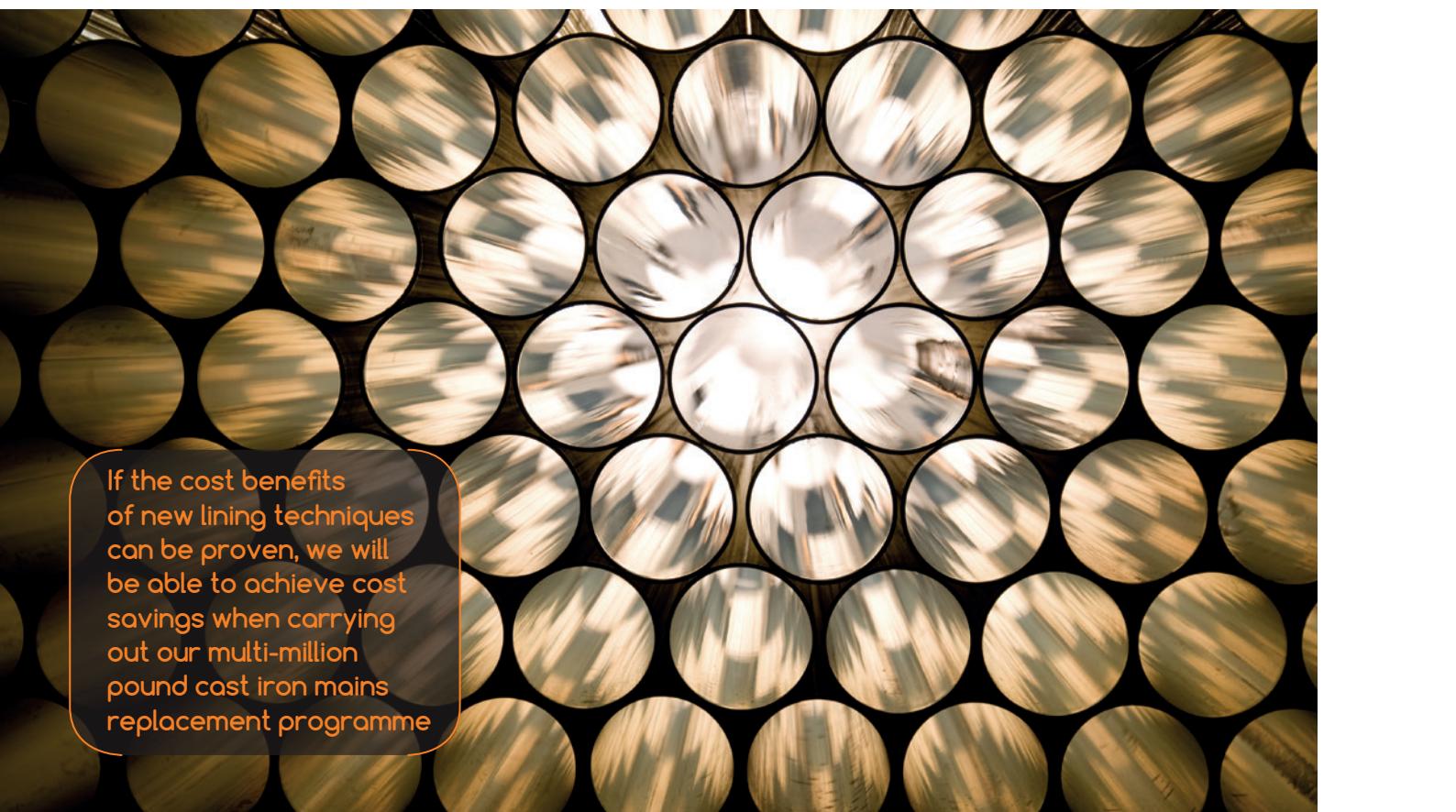


- Provides improved insight into the condition of iron mains. This enables us to evaluate more accurately the likelihood of failure of our iron mains to a level of accuracy never previously possible.
- This will allow us to make better informed and targeted interventions to either replace, repair or extend the life of our iron mains. This has significant cost savings and reduces risk factors.
- This phase demonstrated the tool on abandoned sections of main.

Iron main condition assessment phase 3a – investment in 2013/2014 £46,000

- Following the demonstration of this working technology in phase two, phase 3a tested a number of sample mains sections. Tests involved determining the level of strain that could be expected before an iron main fails. Testing also provided confidence in the new technology's ability to detect faults accurately.
- This phase also included a study to investigate the options for accessing and exiting live mains with the new technology's to inform later phases of the project.
- The next phase of the project in 2014/2015 builds on this work by evaluating options to develop a prototype tool that is suitable for entry into our live gas network. This will enable us to realise fully the key benefits as outlined above.

Cured in-place pipe stage two – investment in 2013/2014 £32,000



If the cost benefits of new lining techniques can be proven, we will be able to achieve cost savings when carrying out our multi-million pound cast iron mains replacement programme

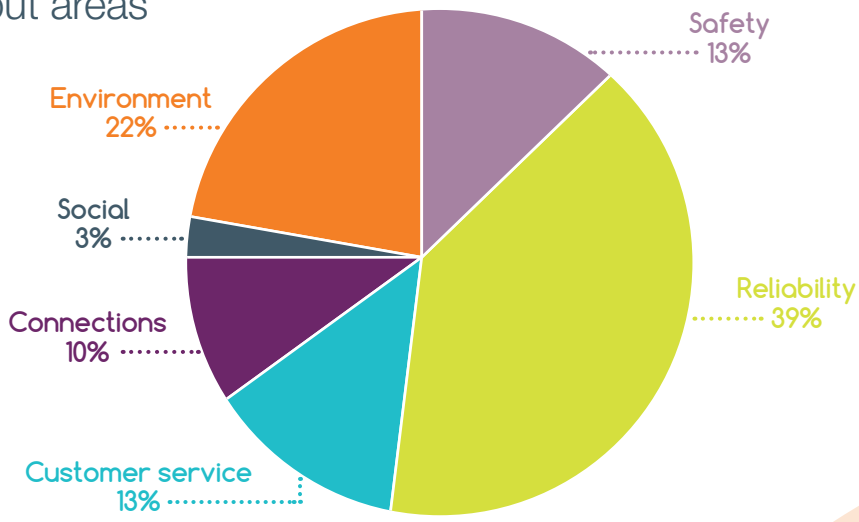
- This project is evaluating lining techniques for cast iron mains. Potentially, new techniques could be more cost effective than replacing these pipes with plastic alternatives, the current industry recognised alternative. If the cost benefits of new lining techniques can be proven, we will be able to achieve cost savings when carrying out our multi-million pound cast iron mains replacement programme and reduce the impact this work has on people and the environment.

Summary of how NIA activities link to our innovation strategy

The pie chart below reveals our innovation portfolio of projects across the six Ofgem regulatory RIIO GD1 output categories. The split of projects demonstrates that we are proportionately targeting each output category and that investment is linked to key strategies in our RIIO GD1 business plan.

Additionally, we have established an innovation process that defines clear owners so we can effectively manage projects.

Output areas



To deliver benefits wider than our expertise, our innovation strategy looks to combine our resources with external partners. Having a diverse pipeline of innovative ideas is of importance to us, so during this first year we have actively marketed the RIIO GD1 innovation allowance at a number of focused events to maximise awareness of these innovation opportunities.

As an example, we have presented at the Cornwall and Devon Business Community Forum, which attracts a significant number of small to medium sized businesses (SMEs), renewable trade associations and academia from the south west of England. We have also presented at a number of business breakfasts and Welsh Government events across Wales. During 2013/2014, we joined **Regen South West** which has excellent links into forward looking businesses and academia across our geography. This is also providing us with valuable insights into energy developments that will impact the future use of our network.



There is evidence that the awareness campaign is working. To date, we have worked with eight external businesses to deliver the 14 projects in our portfolio this year and forged new relationships with a further five companies as a direct result of this engagement.

Innovation governance and culture within our business

We have made significant progress during the last 12 months by developing efficient and structured processes to take us from idea conception to launch and beyond. Setting these processes has enabled us to generate the knowledge, expertise and governance structure that defines sound decision making and makes sure of alignment to our innovation strategy.

This approach is supported by our internal monthly innovation committee which is attended by a number of our executive team and made up of a wide and varied group of colleagues from across the business. It is an effective method of connecting people with different perspectives and experiences.

The group fulfils a key function to our innovation project portfolio management by following an effective innovation process using a formalised value assessment model. Having this group in place also allows us to assign clear project owners responsible for project delivery.

These resources have had a great effect on the internal culture of our business, supported by clear procedures and processes through which colleagues can raise ideas and bring them to life.



Externally, we work closely with the other GDNs through collaboration forums such as the Energy Networks Association and the Energy Innovation Centre (EIC). These forums are invaluable resources, helping us to build mechanisms to share issues and find solutions by combining the skills and expertise.



We have also started to look within the water sector, utility and other sectors to identify transferable practices.

We aim to deliver benefits for our customers beyond our expertise and look for appropriate partnerships to achieve this as part of our collaboration with the EIC.

We attended our first annual innovation conference in Aberdeen during October 2014.

We believe this is an excellent opportunity to showcase innovation investment and demonstrate the excellent progress we have made.

We also welcome the opportunity to forge new contacts and associations to share knowledge and skills to build our innovation strategy for the future. We are confident this will assist us in growing our pipeline of NIA projects that can potentially develop into successful NIC bids.



Our award-winning in-house magazine 2W showcases Emergency and Metering Services First Line Manager Keith Nash's new meter box adapter



A drawing of our stand for our first innovation conference in Aberdeen

Looking ahead to 2014/2015 and beyond

Our first bid to the NIC provided us with the learning to prepare for potential projects for the 2015 competition and a process to develop projects for future years.

We intend to focus on similar output areas in 2015 but with higher investment levels akin to our maximum allowance.

Two examples of exciting innovation projects that we are leading on next year are:

- Further development of our prototype system for iron main condition assessment. This project will include live system trials and the development of a software package that will report the condition and any exceptions identified during its survey of 12-inch cast iron mains.
- A full scale project to treat sludge from multiple gasholder sites. This treated sludge will be re-used as backfill, avoiding disposal/incineration costs and reducing the volume of imported backfill material to create a cost efficient, sustainable solution for the management of gasholder sludge.

The sum of investment for these two projects makes up just over half of our incentive allowance for the regulatory year 2014/2015.

Do you have an innovative idea? Contact innovation@wwutilities.co.uk



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