

Gas Distribution

# Network Innovation Allowance

Annual Summary 2014/15



nationalgrid





# Welcome

*This is the second Innovation Annual Summary for National Grid Gas Distribution under the Network Innovation Allowance (NIA). Our second year under RIIO and the NIA framework has seen a growth in innovation activity, with our portfolio increasing from 40 to 61 projects, with an annual expenditure of £7.64m. The focus for this year has been driving projects forwards from concept through to implementation.*



We have concentrated on ensuring a balanced range of projects in our Innovation Portfolio, contributing towards the continual delivery of our stakeholder commitments: to keep people safe, be reliable, safeguard future generations, provide value for money and deliver quality service for all.

This year we have focused on projects that reduce disruption to our customers. Technologies to minimise installation times and excavations in our iron mains replacement work are key, and as such we have developed our PRISM (Pipe Replacement In Situ Manufacturing) and TORS (Tier One Replacement System) robot. Leakage reduction has also been an important drive leading to significant research in MEG (Monoethylene Glycol) Fogging.

We have continued our focus on collaboration, expanding our breadth of innovation through new partnerships, through our self-funded Technology Search and through support from forums such as the Energy Innovation Centre and Energy Networks Association.

Alongside the growth of our NIA portfolio, 2014/15 saw the launch of our first NIC (National Innovation Competition) project, a BioSNG Demonstration plant. The aim is to design and construct a pilot conversion and clean up plant that will upgrade waste-derived syngas to a pipeline quality gas, enabling the decarbonisation



*(Clockwise from top left) The new TORS robot, displaying innovation at the LCNI conference, our innovation team engaging with stakeholders and our PRISM project gets under way*

of our gas supply through future injection of syngas into our networks.

Looking forward to 2015/16, there will be a continued strategic focus on our six Strategic Value areas with a drive towards implementing project outputs

into the business and delivering long-term value for our customers.

**David Parkin**  
**Director of Network Strategy**  
**Gas Distribution**

# “

**Our third year under NIA will see a continued drive towards implementing project outputs into the business**



# Our innovation strategy

*Our strategy focuses on six Value Areas, which reflect the RIIO Outputs and our Gas Distribution Ambition. These areas have been split into two categories: For Today and For Tomorrow.*

## Our stakeholder commitments

These strategic value areas are underpinned by our five stakeholder commitments. They are to:

- Keep people safe
- Be reliable
- Safeguard future generations
- Provide value for money
- Deliver a quality service to all

## For Today

### Customer Experience



Reduce the size and duration of our replacement and remediation activities. Continually improve our safety standards for our customers and employees. Improve our customer and stakeholder experience through proactive communication.

### Cost Efficiency



Continually reduce the cost of running our network by optimising the way we work, improving the efficiency of assets and the cost effectiveness of investment decisions.

### Life Extension



Extend the life of our assets through increased monitoring and new remediation techniques. Increase our network reliability, thereby reducing disruption of service.

### Environment



Reduce our impact on the environment through energy demand and waste reduction and wherever possible have a positive impact on the environment in which we work.

## For Tomorrow

### Unconventional Supplies



Open up the use of our network to alternative energy sources. Increase diversity and security of supply through the identification of renewable gas sources.

### Future Network



Facilitate the integration of our network into the wider energy chain to ensure least-cost energy provision for our customers. Understand the future energy needs of our customers.



## The story of 2014/15

Over the past year, the Innovation Delivery Team has expanded to 15 people, all working in line with our Strategic Value Areas, to help deliver our ambitions under each section. To implement the innovation strategy, we have formed the Monthly Innovation Performance Group, with key representation from the core functions of the business.

### New partnerships

We are now working with more suppliers across the energy industry too. Through our collaboration with the [Energy Innovation Centre](#) and the [Energy Networks Association](#) we have forged new partnerships with several Small and Medium Enterprises.

In addition, our self-funded Technology Search at the start of 2015 has identified a number of potential innovation partners. We have already used the output of this exercise to develop the [SENSIT](#) Project, with

sanctioning and registration scheduled for the 2015/16 financial year.

### Driving value

Our portfolio has been expanded throughout the year, to ensure a spread across our six strategic value areas. As a result, we had a diversified set of projects throughout 2014/15 that were driving value for our customers.

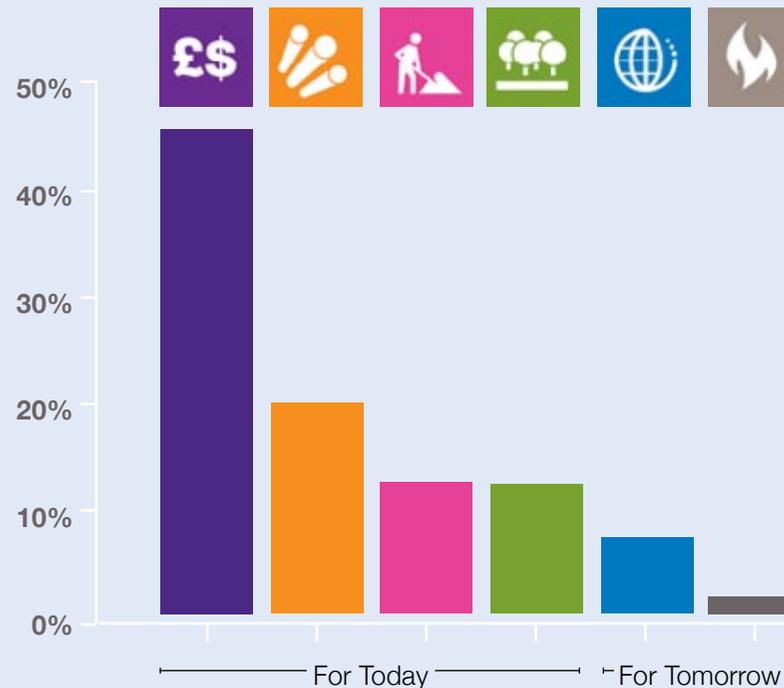
As shown in the bar chart on the right, our focus was on projects that will deliver benefits within the GD1 timeframe (For Today). These projects look at improving our customers' experience and driving efficiency in our replacement works through more cost-effective tools and techniques and decreasing our environmental impact.

We acknowledge the importance of looking ahead to GD2 and beyond and have therefore invested in research to support the development of our future gas network (For Tomorrow).

*The Gas Distribution vision is to embed a culture of innovation in everything we do, and to continuously improve our business, through both technical and commercial innovation. This will help us to develop our knowledge in order to provide a safe, efficient and reliable network, which delivers long-term value for our customers and safeguards our environment.*



## Our NIA spend in 2014/15



## Looking forward to 2015/16

We are in a strong position, with our key priorities established and our six Strategic Value Areas clearly defined. We have the relevant governance and resources in place to support the delivery of our strategy.

The innovation investment strategy will be to focus 80% of the available Network Innovation Allowance budget on the For Today value areas with the expectation that these will begin to optimise Totex and Repex performance and deliver value for customers in the near-term.

The remaining 20% of the NIA budget will be invested in projects to help us to understand the future energy needs of our customers and identify opportunities for decarbonisation of the network.

We will also seek to fund For Tomorrow projects through submissions to the Network Innovation Competition.



## NIA activity

*This is the second year of the Network Innovation Allowance (NIA). The past 12 months has seen us build a portfolio of 61 projects spread across our six value areas:*

### Projects per Value Area



## Fact and figures

# £7.64m

was spent on NIA projects during 2014/15 financial year



# 33

projects were carried out collaboratively with gas distribution network operators



# 27

projects were completed by the end of the 2014/15 financial year



## Customer Experience

*The Customer Experience Strategic Area has seen a continued drive towards improving our customer and stakeholder experience. We hope to do this through the reduction of the size and duration of our replacement and remediation activities, and the improvement of our safety standards for customers and employees.*

We have placed a significant emphasis on 'no dig' projects, using technologies to reduce our excavations and to work remotely.

Some examples include the PRISM (Pipe Replacement in Situ Manufacturing) project, where we are spray-lining an existing cast iron pipe with a polymer to create a fully structured liner. We can do this without the need to excavate to

remove the existing cast iron pipe.

This can significantly reduce the number of excavations and the time taken for work to be completed. It could reduce a standard mains replacement job from a few days to a single day or less.

**A simpler solution** TORS (Tier One Replacement System), is a remotely controlled robot that can be inserted into a pipeline to perform work inside the pipe that would otherwise require excavation.

Again, this reduces the impact on the customer and environment by removing the need for multiple excavations.

Meanwhile, the Acoustek Project helps to accurately detect underground assets using sound waves,

leading to more focused excavations.

### Safety in the home

We have engaged in the Intelligent Carbon Monoxide Project, a collaborative project with Northern Gas Networks, Wales and West Utilities and the Energy Innovation Centre. This trials Intelligent CO Monitors in student housing.

The monitor is battery powered, with GPRS communications and advanced self-monitoring capabilities. The benefit of this is that the monitor can raise and automatically communicate faults to the property owner and therefore reduce the risks of CO to tenants. In addition, the health of the monitor can be monitored via an online portal.



*This remotely-controlled TORS robot enables remote service to mains connections*

# 50 years

*The lifespan of new pipes created through the PRISM technique*



*Intelligent CO detectors are helping make customers safer*



**Watch the videos**  
PRISM  
TORS  
Intelligent CO



## £\$ Cost Efficiency



*The Raynham Farm project (also pictured below, left) could pave the way to greater cost savings*

*By optimising our processes, improving the efficiency of assets and the cost effectiveness of our investment decisions, we can continually reduce the cost of running our network.*

## ONE WEEK

*Time taken to install 1,400km of Reinforced Thermoplastic Pipe (RTP)*



The Raynham Farm Project is looking at the possible benefits of Reinforced Thermoplastic Pipe (RTP).

The initiative is hoping to demonstrate that it is possible to use RTP instead of steel to make 19 bar connections. Using RTP has the potential to significantly reduce the cost and time taken for biomethane supplies to connect to our network.

Our Cured In-Place

Pipe (CIPP) project is reviewing available pipe lining technologies in both the gas and water sectors. The project will deliver performance specifications and best practice guidelines for deploying the technology safely into UK Gas Distribution networks.

Further cost efficiency projects include assessing the Pyplok technology to establish its suitability as an alternative jointing

method for steel risers of Multi Occupancy Buildings and the KOBUS Gas Pipe Puller, which extracts and renews three-quarter inch service pipes without the need to excavate.



**Watch the videos**  
[Raynham Farm Project](#)

## Life Extension

*The focus of projects in this area has been on monitoring and remediation techniques that can contribute towards the life extension of our assets. This is key to reducing service disruption and increasing our network reliability.*

We have been validating the suitability of Orbis Oxifree Corrosion Coating for use on GB gas networks. This has involved using the coating at a number of sites both above and below ground. The aim is to determine the suitability of the product in different environmental conditions.

In addition, our project on polyethylene (PE) repair systems will help us to identify improved methods for maintaining our PE assets. The project is looking at potential repair techniques that could provide an alternative



to replacement.

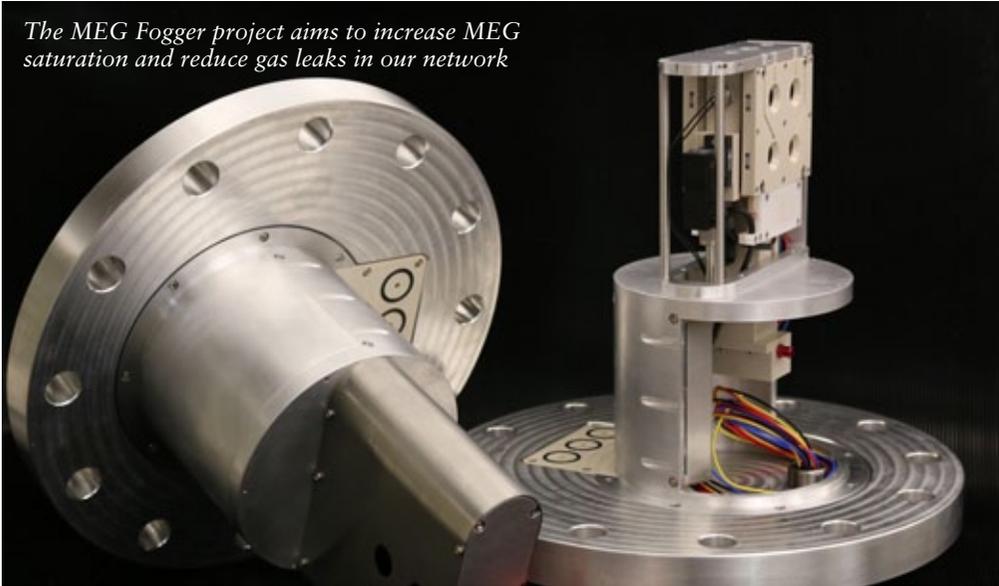
Our Cast Iron Fit for Purpose (CIFFP) project is looking at developing a methodology that satisfies obligations under the Pipeline Safety Regulations and enables Tier 2 and 3 pipes to be either safely remediated for continued use, or prioritised for replacement and decommissioning.



## Environment

By focusing on continually reducing our waste and energy demand, we can contribute to meeting our 2050 environmental commitments.

The MEG Fogger project aims to increase MEG saturation and reduce gas leaks in our network



Our MEG Fogger project is developing a new fogging unit which will improve the mono-ethylene glycol saturation in lead yarn joints in cast iron pipes. This could lead to a significant reduction in gas leakage.

The development of a Packaged Solution for Bio-Methane Injection project looks at how Biomethane producers can connect to the <7 bar network – with the potential to apply to the >7 bar network. This will be a big step towards reducing the use of fossil fuels by making the National Grid network accessible to suppliers of renewable gases.

Our Pressure to Gas project assessed the feasibility of replacing existing pressure reduction equipment with an integrated energy recovery and hydrogen electrolysis equipment package.

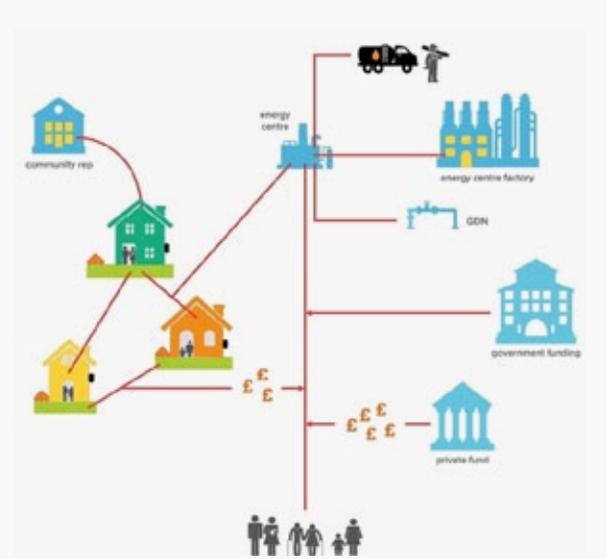
# MEG

Monoethylene Glycol which is used to swell lead yarn joints in our gas network.

## Future Network

To ensure least-cost energy provision for our customers, we are facilitating integration of our network into the wider energy chain.

Project Futurewave is an innovation project that seeks to understand the future energy needs of our customers and the future role of gas distribution networks in distributed generation.



Futurewave: Connecting homes and community energy needs with the experts and investors who can deliver

## Unconventional Supplies

Security of supply is an essential element of our research, so it is important that our network can transport gas from a variety of sources. Our Siloxane Impact Study will inform us of the acceptable limit of siloxanes in our gas networks. On-line Fourier Transform Infrared Siloxane Analyser for Monitoring Biomethane Sites will allow us to monitor the levels of these siloxanes. Both of the projects will facilitate the connection of





# Significant new learning

*Throughout 2014/15, our portfolio of projects has demonstrated a number of lessons that are invaluable in informing current and future projects. A key lesson that has been at the forefront throughout the year is this: a strong strategy, understood both internally and externally, will support the right idea generation and maintain a clear focus on delivering value for customers.*

## A well-balanced portfolio is key to success

# 1

It is important to have a balanced portfolio in terms of scale and project duration. However, what is more important is the breadth of innovation activity across the key areas and their alignment with our business drivers.

Maintaining this balance along with a clear strategic view has allowed the effective management of our innovation portfolio, giving us the ability to react to changes in project direction. Our Value Areas are aligned to Gas Distribution Ambition Statements and are supported across our core functions, ensuring we are focusing innovation on areas with the greatest potential to deliver value to our customers.



*The MOB's project has benefited from the development of our inter-linked project schemes*

### PROJECTS THAT TAUGHT US THIS

The balance of portfolio is demonstrated by projects such as PRISM and CIPP, which are long-term, higher investment projects seeking to revolutionise how we carry out our mains replacement work.

By contrast our Fence Feet and QR Code projects are short-term, low investment projects with transferable solutions that have been trialled



*We have developed the most suitable methods for lining our riser assets*

and tested and are now under consideration for implementation into our business. Additionally, the development of inter-linked project schemes such as the HTC Serline and Nu Flow technology trials, alongside the development of a riser lining specification, allow for a structured approach to developing the most suitable methods for lining our riser assets in Multi-Occupancy Buildings (MOBs).



## 2

## Decommissioned assets can play a key role in innovation

Innovation, by its nature, can be unknown, with ideas and concepts needing to be trialed and tested. Technology allows for real-life conditions to be simulated, such as the ageing of assets. However the most effective testing method is to use decommissioned assets, which were once part of the gas network and show genuine signs of ageing. Greater coordination across our operations departments will help to build a 'store' of these obsolete, yet valuable assets, which could be vital to informing the proof of concept field trials.



*We use decommissioned assets to carry out trials for our projects*

### PROJECTS THAT TAUGHT US THIS

The availability of decommissioned assets has been a major enabler for our MOBs riser lining projects where we need aged pipework to carry out proof of concept trials. Delays to the beginning of the HTC Serline trial were caused by the lack of aged pipework in store.

This experience informed our approval for the Nu Flow trial. We made sure that our partners were keeping sufficient pipework in the required diameters so we did not face the same delays.

The identification of suitable trial sites and decommissioned assets will continue to be key to the success of our projects such as TORS, PRISM and CIPP.

## 3

## Stakeholder interaction is essential for successful project delivery

We are always reviewing how our stakeholder interactions, both internally and externally, can be enhanced in order to deliver what our stakeholders need at the best possible time.

Working with the relevant local organisations and customers has helped us to inform and engage external stakeholders and improve our awareness of their requirements. From an internal perspective, this has been achieved by working closely with our core functions to understand their needs and to facilitate the most effective development of our innovation portfolio.

### PROJECTS THAT TAUGHT US THIS

Timely and well-planned stakeholder engagement was the key to the successful collaboration on the Intelligent Carbon Monoxide Detector Project.

Engagement across the gas distribution networks, suppliers and the local authorities, including fire and rescue, local housing authorities and universities, meant that the project scope was developed to meet their needs and will ultimately ensure that the project delivers value to our customers.

The QR Code project was devised after listening to what our stakeholders wanted – more information on the work we do in their area. The roadworks.org portal, a collaboratively-developed tool used by utilities to provide live information on our street work activities, was



*The QR code project kept our customers in the loop*

already in place. However our customers wanted to be able to access this information quickly. The QR code project facilitated this, taking customers directly to the details of a particular job, providing more specific and timely information.



## Innovation partners can come from anywhere

4

The projects in our portfolio have been sourced in many different ways. These include working closely with our suppliers to develop tailored technical solutions, through to issuing challenge statements via collaborative forums, such as EIC and ENA. This has developed a great breadth of innovation projects with a number of different suppliers.

Throughout the year, we have sought to widen our reach, in particular with our self-funded Technology Search carried out in January 2015 as well as actively seeking ideas from potential partners of all sizes. This, along with our work with our Gas Distribution Strategic Partners, has given us the greatest possible reach to find new partners.



*Our SENSIT project has improved our ability to locate underground pipe work*

### PROJECTS THAT TAUGHT US THIS

The SENSIT Acoustic Pipe Locator project is the first project that we have initiated as a result of the Innovation Technology Search, completed in early 2015.

This project is targeted at improving our ability to locate underground pipe work, which will reduce the size of excavations and improve safety around damage to our assets. This project has led to extensive learning and shared knowledge in the Repair space between the National Grid stakeholders and the supplier of this product.

It has especially helped us to understand how this technology, and others, is trialled, assessed and deployed in America and what else is available worldwide to meet the requirement of identifying underground assets.

The Optomole project is targeted at identifying gas in ducts via optical sensing equipment.

This project was presented to the GDNs via the Energy Innovation Centre, which aims to present SME business innovations to the GDNs for NIA/NIC funding.

The EIC agreed a series of innovation 'challenge statements' targeted at supporting outperformance of the RIIO targets. This project has been in flight for approximately 12 months with National Grid, Northern Gas Network and SGN. It is now moving to the next phase of field trials throughout the UK gas network.

The Futurewave project was initiated via the EIC as a collaborative project, sponsored at Director level among all of the Gas Distribution Networks. The project targets the creation of a digital platform (IGNITE) to allow UK energy customers and stakeholders to identify and engage new customer-centric energy solutions.

### FENCE FEET: MAKING THE PUBLIC SAFER

We have successfully trialled a Fence Feet product that has been designed to minimise trip hazards for members of the public and our staff.

The product has a smaller footprint (150mm smaller than existing products) and is highly visible. In addition it is lighter than existing products and is made from recycled PVC. Following positive feedback from our field operatives and successful wind tunnel testing of the product, we are now looking at mechanisms for rolling this product out into our business.

For more about Fence Feet and to hear from its designer, see [page 15](#) of this document.

#### BEFORE



#### AFTER





## 5

## Up-front engagement is the key to successful collaboration

Collaboration with partner suppliers as well as, in some cases, other gas distribution networks, has ensured that we have been able to leverage the best knowledge and skills across the industry.

Collaboration will help ensure we deliver the greatest value to our customers across all gas distribution networks. However, contractual and in-house process requirements can cause delays in project start-up and throughout the life of the project when working with multiple partners.

Careful coordination, early planning and up-front engagement is key to ensuring all partners are aware of process and contractual constraints so that these can be factored into project planning to prevent any unnecessary blockers to innovation.

### PROJECTS THAT TAUGHT US THIS

PRISM demonstrated how this approach can be critical, with National Grid and four other partners completing contractual and project sanctioning processes within a constrained timeline and difficult conditions. The Irons Main Condition Assessment project and CIPP have demonstrated a similar approach; the collaborative team has brought together a wider range of skills and knowledge via a joint GDN team, allowing for the leverage of greater skills and knowledge.



*(Above): Our PRISM (Pipe Replacement In Situ Manufacturing) project aimed to minimise installation times and excavations in our iron mains replacement work*



# Collaborative innovation

*Partnerships have been crucial to National Grid's innovation strategy over the last 12 months. Working with specialist organisations across a range of disciplines, the Gas Distribution team is helping change the industry for the better.*



Watch the videos  
LCNI 2014 in  
Aberdeen



## LCNI: An innovation showcase

**NEXT EVENT: LCNI 2015 is being held at the ACC Liverpool on 24-26 November**

National Grid showcased many of its innovation projects at an event in Aberdeen, Scotland: the Low Carbon Networks and Innovation (LCNI) Conference. The 2014 LCNI Conference was the most highly attended to date,

welcoming over 750 delegates and over 70 exhibitors from across the world.

Now in its fifth year, this unique event is the only conference dedicated to showcasing the breadth of innovative engineering work taking place across the networks to deliver the UK's energy future. The event was an excellent opportunity to talk about the great work being done with our partner companies who undertake the essential research and development for our innovation projects.

Some of the revolutionary innovation projects on display included PRISM and TORS. It was the first time that PRISM, a collaboration with our partners at Balfour Beatty, was displayed in a public forum.

Also on display was a fourth generation Core and Vac truck, used for keyhole technology and supporting our objectives to enhance customer experience and reduce customer interruption.

## BRINGING THE INDUSTRY TOGETHER

National Grid has partnered with the Energy Innovation Centre, a not-for-profit organisation which acts as a gateway between small and medium enterprises and network operators.

At the same time the Smarter Networks web portal, developed by another partner, the Energy Networks Association, has provided a focused channel of communication for the industry.

For a full list of all the innovation projects currently on the Smarter Networks portal, [click here](#).





## QR CODES: Keeping customers updated

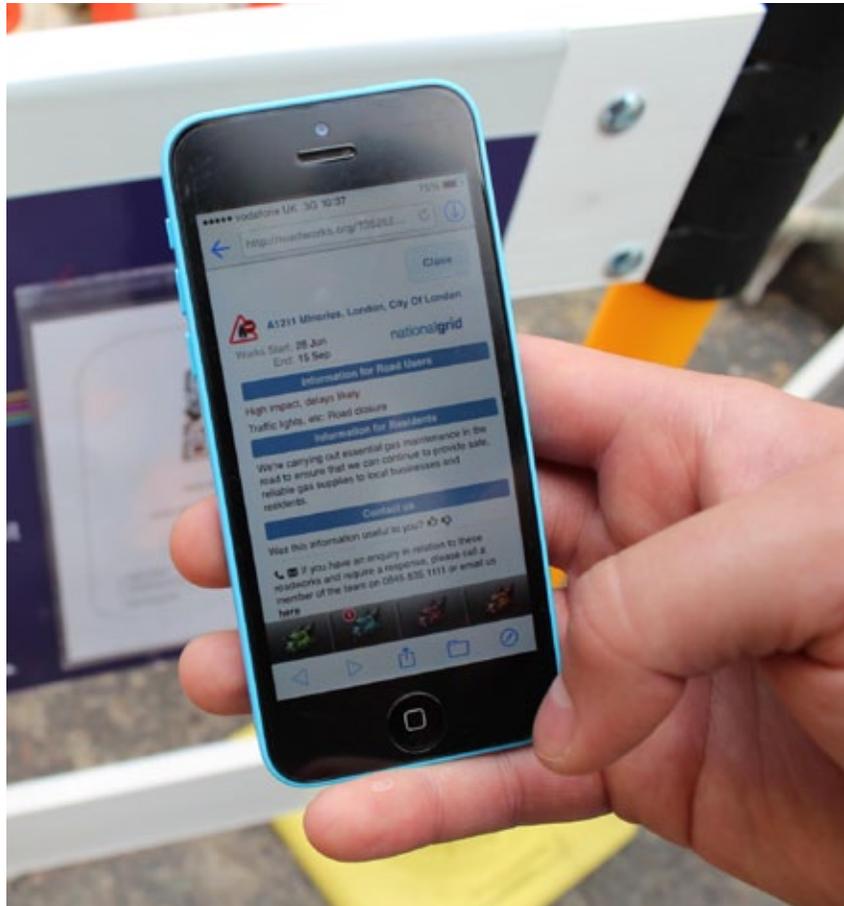
In the early part of 2014/15 we launched our QR Code Trial, helping customers by providing more accessible, real-time information about the work being carried out in their neighbourhoods.

The project came about as a result of our drive to improve communication with our customers. The revamped [roadworks.org](http://roadworks.org) website had already been developed by utility companies to display roadworks planned as a result of essential repairs and maintenance.

QR Code boards were placed on planned work sites across London during the trial period. Members of the public were able to scan the code and they were then taken directly to the job details on the [roadworks.org](http://roadworks.org) website. Here customers could find more information about how long the disruption was likely to last, videos explaining why the work was happening and contact information for enquiries.

Hits to the [roadworks.org](http://roadworks.org) website doubled during the trial. Following on from the success of the trial, we are now in the process of rolling out the QR Code technology across all four of our networks.

Following on from the success of the trial we have shared our learning with Wales & West Utilities, who have used these outputs to trial the inclusion of QR codes on their information boards on site. The next steps are to understand the rollout opportunities across our four networks to deliver the greatest value to our customers.



(Above) The London public were better informed about maintenance work during the QR code trial and (left) a similar project in Bristol by Wales & West Utilities

## Award-winning innovation

*Several partners have received industry honours this year for National Grid-related projects.*

### TORS (SYNTHOTECH)

- Winner of the Utility Pipeline Technology Award at the 2015 Pipeline Industry Guild Awards
- Winner of the 2015 WRc 'Best of the Best' Innovation Award



*Andy Newton (project manager) and Synthotech representatives receiving the Pipeline Industry Guild award*

### INTELLIGENT CO MONITORING (SMART COMPLIANCE)

- Winner of the Best Safety Innovation Award at the 2015 Energy Innovation Centre awards

### ACOUSTEK (PARTNER SGN)

- Winner of the Best University Technology Award at the 2015 Energy Innovation Centre awards



“A BioSNG plant using all the waste from Coventry could make enough green gas to heat a quarter of the homes there”



*Household waste could be a viable option for generating renewable gas*

## BIO SNG: Turning household waste into fuel

### PARTNERS: Advanced Plasma Power, Progressive Energy and Carbotech

In a highly populated country like the UK, rubbish is the biggest potential source of low carbon fuel. Mixed waste could produce enough renewable gas to meet up to 40% of the gas we use in our homes. This year, National Grid has begun to look at the potential of ‘gasification’.

This means heating up organic matter, such as the stuff you throw away, and breaking it down to create a useable fuel from the gas produced. For example, a BioSNG plant using all the waste from the city of Coventry could make enough green gas to heat a quarter the homes there.

Once the pilot plant in Swindon is fully commissioned by our specialist partners, Advanced Power Plasma, Progressive Energy and Carbotech, later in 2015, we can start testing and optimising the process. We expect

to be producing BioSNG by early 2016, when the facility will be used as a showcase to demonstrate the technology to energy suppliers and the Government.



#### Read more

[Click here to find out more about BioSNG by reading a detailed article on National Grid's Connecting website](#)



*Richard Layne from Fence Feet Ltd*

## Innovation doesn't mean added complication

The Fence Feet product is one that arose from humble origins with inventor Richard Layne having set up the business from his shed. National Grid, Balfour Beatty and tRiIO are now trialling the new design for these simple but essential fence feet that provide stability for the high two-metre fences that are used on site to build compounds around our works.

“I have been working on these new innovative designs for four years and I am really pleased that National Grid has put their faith, funding and expertise into my business and also to Balfour Beatty for guiding me in the right direction,” said Richard.

“The cost and safety speak for themselves, but we shouldn't forget that they are made from 100% recyclable material making them environmentally sound as well. I am really looking forward to hearing what the people who work with them every day think of the designs.”



# Our innovation portfolio

The next two pages contain the full list of projects that were registered within 2014/15. For further information on these projects, and to read the project progress reports, please either click the link next to the specific project, or visit the Energy Networks Association Smarter Networks Portal at [www.smarternetworks.org](http://www.smarternetworks.org)

## National Grid Gas Distribution Projects

Ref number	Completed in 2014/15	i	Ref number	Continuing through to 2015/16	i
<b>NIA_NGGD0001</b>	Optimise Own Energy Use	>	<b>NIA_NGGD0021</b>	Alternative Riser Pipe Jointing Method - Pyplok	>
<b>NIA_NGGD0002</b>	Development of Packaged Solution for Bio Methane Injection	>	<b>NIA_NGGD0038</b>	On-Line Fourier Transform Infrared Siloxane Analyser for Monitoring Biomethane Sites	>
<b>NIA_NGGD0015</b>	Seams Analytical Pilot	>	<b>NIA_NGGD0040</b>	Introduction of 19 Bar PE Pipeline in the UK Gas Network	>
<b>NIA_NGGD0018</b>	Thin Walled PE Liners	>	<b>NIA_NGGD0006</b>	Sealback II	>
<b>NIA_NGGD0020</b>	Pressure to Gas	>	<b>NIA_NGGD0043</b>	MEG Fogger Trial Phase 3	>
<b>NIA_NGGD0023</b>	MEG Improvement Phase 2B	>	<b>NIA_NGGD0044</b>	KOBUS Gas Pipe Puller	>
<b>NIA_NGGD0024</b>	Tier One Replacement System Stage 3	>	<b>NIA_NGGD0045</b>	Fence Feet Improvements	>
<b>NIA_NGGD0025</b>	The impact of biomethane on odourisation in gas distribution networks	>	<b>NIA_NGGD0046</b>	Tier One Replacement System Stage 4.2	>
<b>NIA_NGGD0026</b>	Demand Allocation	>	<b>NIA_NGGD0047</b>	Jointing Techniques for PE Pipelines upto 10 bar	>
<b>NIA_NGGD0030</b>	Review and Validation of the current gas demand forecasting methodology	>	<b>NIA_NGGD0048</b>	Examination of the relationship between leakage and operating pressure in MP systems	>
<b>NIA_NGGD0031</b>	Optimal use of Quick Response (QR) Codes	>	<b>NIA_NGGD0050</b>	WEKO Seal Removal	>
<b>NIA_NGGD0034</b>	MEG Improvement Phase 2C	>	<b>NIA_NGGD0052</b>	Demand Allocation Phase 2	>
<b>NIA_NGGD0036</b>	Tier One Replacement System Stage 4.1	>			
<b>NIA_NGGD0037</b>	TD Williamson Guided Wave Non Destructive Testing Inspection for High Rise Buildings	>			
<b>NIA_NGGD0042</b>	PRISM (Pipe replacement in situ manufacturing) – Strategy and High Level Plan for Delivery	>			
<b>NIA_NGGD0049</b>	Pressure to Gas (Phase 2)	>			

**For more information on each project please click on the arrows**



## National Grid Gas Distribution Led Collaborative Projects

Ref number	Completed in 2014/15	i
NIA_NGGD0008	Internal Stress Corrosion Cracking (ISCC) Assessment Work	>
NIA_NGGD0009	Orifice Plate Deformation	>
NIA_NGGD0014	Cast Iron Fitness For Purpose (CIFFP)	>
Ref number	Continuing through to 2015/16	
NIA_NGGD0007	Development of DANINT FWAVC software for New Gas Chromatograph	>
NIA_NGGD0019	Pipeline Failure Rate Determination Due to Inland Natural Landsliding	>
NIA_NGGD0022	Study of crater formation threshold during gas leakage on high pressure pipes	>
NIA_NGGD0032	Intelligent CO Monitors	>
NIA_NGGD0033	Multi-Occupancy Building CIP (HTC Serline)	>
NIA_NGGD0035	Multi-Occupancy Building Cured In Place Lining (Nu Flow)	>
NIA_NGGD0039	Siloxane Impact Study	>
NIA_NGGD0041	Development of Specification for PE Repair Systems	>
NIA_NGGD0051	Review of the FWACV Billing Regime	>
NIA_NGGD0055	CIP Riser Specification	>
NIA_NGGT0005	European Pipeline Research Group (EPRG) 14/15	>

## National Grid Gas Transmission Led Projects

Ref number	Completed in 2014/15	i
NIA_NGGT0061	PRCI - Pipeline Research Council International 2014	>
NIA_NGGT0062	EPRG - European Pipeline Research Group -2014	>
NIA_NGGT0068	Risk Assessment Methodologies for Pipelines and AGI's '14	>
Ref number	Continuing through to 2015/16	
NIA_NGGT0003	Pipeline Research Council International (PRCI) 14/15	>
NIA_NGGT0023	Development of "AGI safe"	>
NIA_NGGT0047	Resource and Asset Reuse Toolkit	>
NIA_NGGT0064	High Altitude Aerial Surveillance	>

## Northern Gas Led Projects

Ref number	Completed in 2014/15	i
NIA_NGN_035	Fracture Monitoring using Acoustics	>
Ref number	Continuing through to 2015/16	
NIA_NGN_090	Project Futurewave	>
NIA_NGN_078	Guided Wave Non Destructive Testing Inspection of Mains Pipelines	>

## SGN Led Projects

Ref number	Completed in 2014/15	i
NIA_SGN0045	Orbis Oxifree (TM198) Corrosion Coating	>
Ref number	Continuing through to 2015/16	
NIA_SGN0006	Optomole (Stage 1)	>
NIA_SGN0023	Cured In-Place Pipe (CIPP) (Stage 2)	>
NIA_SGN0044	Acoustek	>

## Wales & West Utilities Led Projects

Ref number	Completed in 2014/15	i
NIA_WWU002	e Pipe – Trial internal lining assessment and development of small diameter pipelines	>
NIA_WWU0006	Asset Health and Criticality Modelling	>
NIA_WWU_018	Asset Health and Criticality Modelling (Pipelines)	>
Ref number	Continuing through to 2015/16	
NIA_WWU_009	Investment Prioritisation in Distribution Systems	>
NIA_WWU017	Iron Mains Condition Assessment System Phase 3	>

**If you have any more queries, please contact:** National Grid Gas Distribution, Hinckley Operational Centre, Brick Kiln Street, Hinckley, Leicestershire, LE10 0NA  
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