

# Collaborative Gas Distribution Networks Discretionary Reward Scheme 2013-15



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your gas networks in collaboration

nationalgrid  
gas distribution

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Gas Networks

SGN  
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UTILITIES



## The 'power of four'

We're working together using the '*power of four*' to deliver benefits in the areas important to our stakeholders and us.

We will do all we can to:

- Ensure no person is harmed through accidental Carbon Monoxide (CO) poisoning;
- Support the eradication of fuel poverty;
- Safeguard the needs of our vulnerable customers;
- Reduce our impact on the environment to provide a sustainable greener future for gas.

# The power of four: We are stronger together

**We've built firm foundations for our collaboration through sharing, learning and responding collectively and our activities are increasing year on year.**

We continue to share learning around projects that address key safety, social and environmental issues; collaborating to deliver efficient and effective solutions.

Understanding which initiatives are working enables us to prioritise future investment as well as recognise and adopt industry best practice.

**As a group, we are committed to:**

- Supporting and protecting the communities that we live and work in, and our wider impact on the environment;
- Going beyond what is expected of us, exceeding both our social and moral responsibilities;
- Collaborating to find solutions that benefit our customers and stakeholders

By working together, we have achieved so much more than we could ever have done separately, allowing us to effectively communicate consistent messages to national, regional and local audiences, whether that is lobbying for policy change or becoming more accessible to our stakeholders through our partnerships. It makes for streamlined working as we share the costs of activities and lobbying, developing joint communications and activities, ultimately delivering outcomes efficiently for customers.

Sharing both our successes and challenges allows us to not only understand the best approaches, it also prevents us from repeating mistakes; and it gives us far more efficient ways of working. By piloting different approaches across the four organisations we can then adopt the most successful ways of working.

**In the first two years of RIIO-GD1 we have worked together to deliver:**

- **100,000** people's lives improved as a result of support through our fuel poor schemes, including **24,065 fuel poor connections**, saving annually an estimated **£13m** for our customers;
- Carbon savings of **105,612** tonnes through conversion of these households from more carbon intensive alternatives;
- **7,845** tonnes of carbon saving through reducing the daily impact of our operations;
- An increase in CO awareness of **39.4%** through our activities;
- An additional **14,715** complimentary carbon monoxide alarms for vulnerable customers

We are proud of how our collaboration has matured over the last two years. The submission has not only allowed us to reflect on what we have achieved to date but helped us build on our successes, plan for the future and continue to deliver valuable outcomes.

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## ► Fuel poverty and vulnerable customers: Our mission

We are working together to support the eradication of fuel poverty through:

- Raising awareness of the issue and the support available;
- Sharing best practice to improve and focus the solutions and support we provide;
- Taking action nationally to make support and solutions more accessible to customers and lobby nationally for positive change and cohesion

As well as supporting those in fuel poverty, we look at vulnerability more widely and our work is tied closely into the Energy Networks Association’s (ENA) Customer Safeguarding Working Group (CSWG), formed in January 2014.

### The group’s mission is:

To identify and provide a fair and tailored response to eligible customers by safeguarding our customers through a coordinated industry approach.

The aims of the group include:

- Sharing vulnerable customer best practice;
- Addressing the current limitations of the Priority Services Register (PSR);
- Discussing incident and severe weather responses

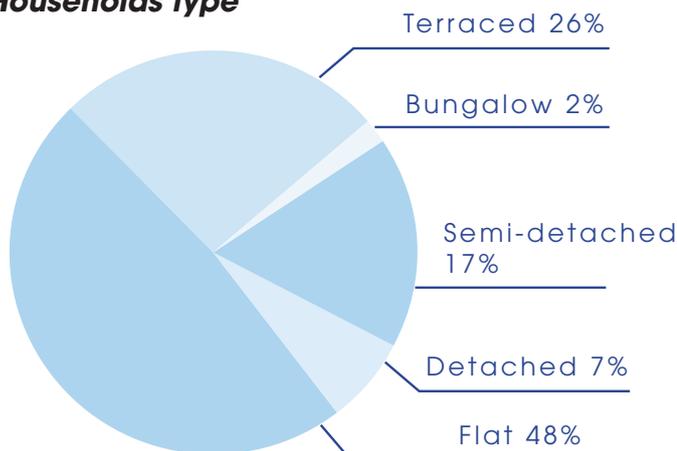
## ► Protecting our vulnerable customers

**Working together gives our voice more influence and reach to safeguard vulnerable customers and those in fuel poverty.**

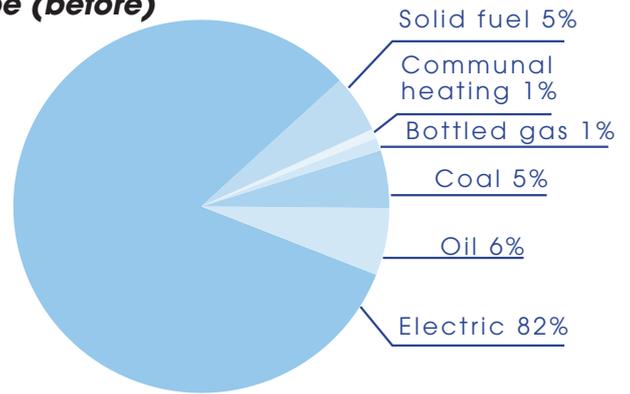
A key RIIO social obligation is to deliver at least 9,700 Fuel Poor Network Extension Scheme-funded gas connections each year across Great Britain. We are committed to exceeding this target and, after two years, we are ahead of our annual figures.

- **Together we have delivered 24,065 fuel poor connections in the first two years of RIIO-GD1**

### Households type



### Households heating solutions by energy type (before)



When considering the property type and form of previous heating:

- **We estimate moving to gas has saved customers £13m on their annual fuel bills**
- **Equating to 105,612 tonnes of carbon**

However, there is even more that we can do to play our part in eradicating fuel poverty and safeguarding vulnerable customers.

As a group we’re strong, working with our partners we can do even more. We form part of the Off Gas Grid Industry Working Group (under the Fuel Poverty Advisory Group) along with Energy Networks Association’s CSWG and GDN Fuel Poverty Best Practice Groups, collectively working to find the best ways to protect fuel poor and vulnerable customers.

The CSWG includes stakeholder representatives from gas and electricity distribution companies, Gas Shippers, Energy Suppliers, Xoserve, Gas Safe Register and others all working to identify the best solutions for all our customers.

Through these groups we’re trialling new schemes and identifying new partners; getting our messages heard, sharing ideas and learnings and making a real difference at a national level. Listening to stakeholders focuses us on the issues that matter to vulnerable customers and their guidance helps us progress these activities.

We’ve been working on separate trials such as heating park homes then coming together to share the learning. Now we’re working with National Energy Action (NEA) to research which key players and networks can help us – and the industry as a whole – understand how to make the most impact and which strategic collaborations would be most valuable.

The output from this work has helped to validate our current strategic approach and confirm we are using our partnerships wisely. We recognise that the people we can help most through offering whole house measures are those who fall through the gaps in available funding and those who do not meet the current economic test criteria. The NEA report is helping us better target our initiatives in these areas.

**Through our joint working we’ve seen recent successes, including the Government announcing £25m to fund central heating systems for fuel poor customers in 2015/16 in Great Britain. A national data mapping exercise also allows industry players to locate off gas customers and to target those most in need.**

This is just the start. Because of these projects, we’re in a great position to make even more of a difference moving forwards.

## ► Communicating efficiently and effectively

**Sharing ideas and resources allows us to extend our reach and help more people.**

Together we work out what delivers the most impact when it comes to raising awareness of issues surrounding vulnerability and fuel poverty, communicating more efficiently and reaching out to the customers that we help.

We have identified the most effective channels to reach our target audiences, and which partners are able to help spread the messages further.

We recognised the need to do more to inform private landlords of the Fuel Poor Network Extension Scheme and have placed an ongoing quarterly advert in the **National Landlord Association (NLA)**'s magazine, which is distributed to over 20,000 landlords. The advert allows us to promote our assisted connection offer and increase opportunities for landlords to take advantage of the scheme and reduce the average energy bills of their tenants by converting to gas.

Example of a quarterly advert placed in the NLA.

Speaking with one voice, our messages are clear, concise and impactful, no matter where we are or to whom we are speaking.

Our joint exhibition stand at the National NEA Conference gave local authorities and other key partners the chance to learn about potential opportunities to work with us and understand the wider benefits of a collaborative approach.

**Together we also sponsored and exhibited at the Fuel Poverty and Energy Efficiency Group (FPEEG) dinner, which was attended by 90 parliamentarians;** raising awareness of our collaboration and the potential to work with us to deliver benefits to constituents locally and support the national target to eradicate fuel poverty.



Far right: Derek Lickorish, chair of the Fuel Poverty Advisory Group for the FPEEG event, with Rebecca Harries and several GDN representatives.

## ► Sharing best practice

**Through collaboration we can trial more ideas, amplify our messages and learn more from one another.**

Trialling new schemes and campaigns independently and then sharing the learning is a smarter way of working and helps to eliminate duplication. It also means we can identify the initiatives that have most impact and prioritise for roll out nationally.

The work we have carried out over the past two years has enabled us to develop a consistent, structured approach for trialling new ideas. Our approach assigns responsibilities for different audiences to each GDN, which allows us to trial more ideas with more groups including harder to reach customers. We are seeing results from the pilots and using the outcomes to guide next steps.

An example of this is our work with partner companies to help park home residents get connected to the gas main through the Fuel Poor Network Extension Scheme.

It's a challenging task with significant hurdles to overcome, so we have considered the content of Consumer Focus's report 'Park Homes – Living the Dream?' and shared the methodology used to identify the most appropriate park home sites.

This learning has influenced our approach, which is now more consistent, more efficient and provides increased customer benefit.

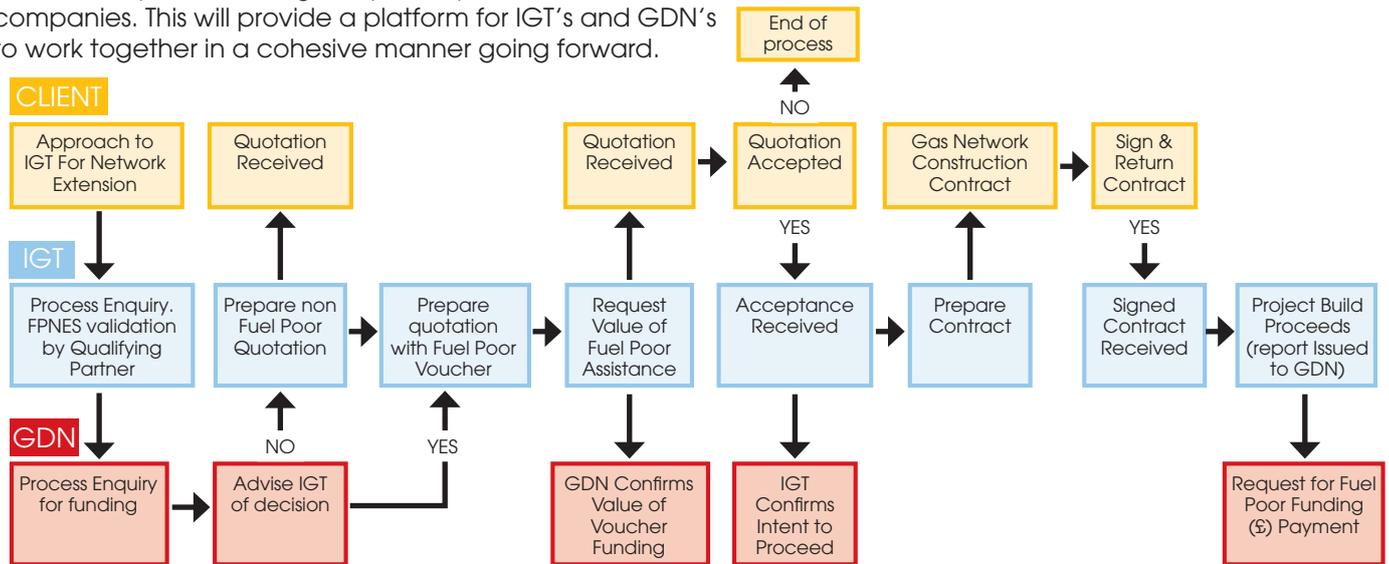
We're all committed to supporting Independent Gas Transporters (IGTs) to install mains gas to existing residential houses to get more customers on gas and reduce their energy bills.

A pilot project in one of the most deprived areas in the UK (top 20% in the Multiple Deprivation Index) has been completed which saw Housing Association properties and private properties connected to the network for the first time.

**The pilot saw 85% of all residents choose to switch to mains gas** and all properties were eligible to claim a fuel poor voucher. Learnings have been shared with IGTs to help develop a joint approach for connecting off-gas customers in private and social housing to the mains.

## IGT fuel poor connection process

Consultation now ongoing with Association of independent Gas Transporters (AIGT) that will lead to the established process being adopted by AIGT member companies. This will provide a platform for IGT's and GDN's to work together in a cohesive manner going forward.



We're continually looking for ways to go above and beyond what's required of us and make more of a difference to the lives of vulnerable customers or those struggling with fuel poverty.

Previously, data about the estimated four million off gas grid properties was poorly coordinated making it difficult for networks and suppliers to identify vulnerable customers.

Working with the Welsh Government, one of the networks **undertook an exercise to identify and map all the off-gas households and calculate how far they are from the gas main**. This information helps determine if it is economically possible to connect them to gas, which helps us tailor our messages accordingly.

The approach and process used for mapping has been shared in the Off Gas Grid Industry Working Group. Having demonstrated the relatively low cost of this exercise, **Department of Energy and Climate Change (DECC) and the networks are undertaking this mapping exercise across Great Britain**.

The outputs, which have been recently published, will also help all interested parties make decisions about the most appropriate heating system for each property. For more about how we're using the data, see page 2.

In the cases where a customer is too far from a gas main to make connection viable, we're working with third sector partners to offer customer support. **We are looking at a more holistic service, providing energy advice at Rural Energy Cafes. This could potentially reduce fuel bills by an average of £300.**

### Cross Sector Learning to protect our Vulnerable Customers

We are also looking beyond our own sector to identify and adopt best practice. Western Power Distribution (WPD) was the first UK organisation to be assessed by the British Standards Institute (BSI) as compliant with BS 18477 (Inclusive Services Provision) which recognises that companies are inclusive, treat people fairly, take account of personal circumstances and avoid putting consumers in vulnerable situations. We are now all reviewing the potential to obtain this important standard.

CSWG scoped research to improve the data available to inform our decision-making prior to arriving

onsite, which looks at electricity and gas distribution along with current supplier practices. Benchmarking offers best practice recommendations for the industry and identifies further areas of improvement to be shared through this forum.

In recognition of the fact that vulnerable customers are likely to feel the greatest impact of a large-scale incident, we have developed and updated our major incident plans. Through consultation with stakeholders we have redrafted external communications, Crystal Marked by the Plain English Campaign, and adopted them nationally so that they are consistent and accessible to everyone.

## ► Bringing about change nationally

**The influence we continue to exert at a national level means we can help vulnerable customers and those living in fuel poverty.**

By using the power of four and beyond, we are influencing the national agenda leading to real change for the better.

The Off Gas Grid Industry Working Group reports directly to the Government's Fuel Poverty Advisory Group (FPAG) and allows us to work with stakeholders to lobby for, and deliver, positive action for off grid fuel poor customers.

Through the group we highlighted that although customers living in fuel poverty can receive vouchers to fund a gas connection under the Fuel Poor Network Extension Scheme, these customers can't afford the new central heating system that is needed to use the gas.

The Government recognised that policy and funding gaps, exist and announced the first new fuel poverty strategy in a decade outlining challenges and actions for the next 15 years so that future governments take the right steps to tackle the issue.

The outputs from research, undertaken by the University of Leicester – as mentioned previously,

conducted in conjunction with CSWG – offers best practice recommendations for the industry around services to vulnerable customers and identifies further areas of improvement to be shared with wider supply and distribution companies. The group is also reviewing the way we collectively categorise vulnerability in terms of consistency, with the aim of creating ‘one version of the truth’, facilitating two-way data flows across gas and electricity

networks and between networks and suppliers, with the ultimate goal of extending this register to the water industry.

In relation to fuel poverty specifically, the NEA research supported that we’re focusing on the right key themes. The next step is for us to work with key partners to look at how we help the people that don’t necessarily fit within the criteria, and continue to make sure reporting is consistent and effective.

## ► Joint solutions to tackle fuel poverty

ISSUE	STAKEHOLDER	SOLUTION/ACTION TAKEN	BENEFIT DELIVERED
Need for holistic solutions to support fuel poor extension scheme	Customers DECC Ofgem Local Authorities	Lobbying for whole house solutions to be funded from DECC pot	<b>£25m fund for 2015/16 for new central heating systems</b> for fuel poor customers in England. We’re already working with local authorities and our fuel poor partners to make them aware of the fund
District Heating System connection is not financially viable	Customers Ofgem Local Authorities	Currently under consultation with Ofgem as a result of GDNs input	Change the distribution of fuel poor vouchers so networks receive <b>one voucher per household rather than per building</b> . More fuel poor customers can reduce their bills by connecting to gas
Need for publishing gas map data at a postcode level	Customers Local Authorities DECC	A proposal to change the available data level was approved by the Secretary of State meaning DECC has published aggregate information under the Open Government Licence	<b>Greater insight about the needs of off-gas residents</b> such as housing type, home energy efficiency and benefits data, to help inform how we could support them further
Lack of information for callers to the Energy Savings Trust (EST) helpline who may qualify for a fuel poor gas connection	Customers EST DECC	We’re jointly funding the trial of an 0800 free phone telephone number giving customers access to a central GDN qualifying partner to forward them to the correct GDN	We can <b>reach vulnerable customers who ordinarily we may not be able to identify</b> and contact to help them cut their fuel bills

## ► What next?

We will continue with our now well-established groups. Our future work plan, informed by the updated DECC Fuel Poverty Strategy changes to the voucher scheme and NEA research, includes an even greater focus on those areas outside our current economic test:

- Tackling off-grid gas properties
- District heat networks
- Working with IGTs
- Working to quantify the associated health benefits of a new gas connection
- Further developing our local partnerships to support communities

From a vulnerable customer perspective, we will continue to improve the data around these customers and carry out trials, through the CSWG, to work better

with our electricity counterparts to improve both data around, and services to, our vulnerable customers.



GDN representatives with our collaborative stand at the NEA conference.

## ► The environment: Our mission

We're working together to reduce our impact on the environment and provide a sustainable greener future for gas by:

- Mitigating the impact of our day-to-day business practices on the environment;
- Working together to produce robust reporting, and help shape regulation and legislation;
- Planning for a low carbon future and supporting the role of gas in the future energy mix

## ► Protecting our world now and for the future

**Protecting our environment is key to our decision-making both individually and collaboratively.**

We play a key role in a number of groups set up to drive the environmental agenda and agree industry standards. We're bringing our relevant expertise to the table to help inform and contribute to the conversation around the future energy mix both within and outside our sector. We're listening to our stakeholders and taking guidance so that we're focusing on what's important to both the people and communities we engage with.

Although we are required to share the learning from centrally funded innovation projects, we see the value in going above and beyond these minimum requirements; we're committed to sharing this learning and our plans as early as possible resulting in more co-ordinated and efficient trials. This has included the introduction of a Gas Innovation and Governance Group quarterly newsletter that is circulated to all interested stakeholders, and details our ongoing innovation activities.

As demonstrated below, together we've **introduced innovative technology to lessen our environmental impact, developed new and consistent reporting approaches and reduced the carbon produced by our companies.** We're proud of what we have achieved so far and this looks set to accelerate through future initiatives like the ground-breaking Ignite project which creates solutions to access less carbon intensive, cheaper energy, and the work we're doing around readying the network and the regulations within which we operate for green gas injection.

## ► Using innovation to reduce our carbon footprint

We're consulting with our stakeholders both individually and collaboratively to develop and improve our environmental strategies and we're working together to identify every potential opportunity to improve our business practices and reduce the carbon footprint we leave behind.

As well as sharing best practice, when it comes to our business carbon footprint we look to reduce this through schemes like using low carbon vehicles within

our fleet and recycling, the reduction of spoil to landfill and the use of virgin aggregate. We've developed a standard approach to assessing and managing risks associated with climate change and are at the forefront of new and innovative ways of lessening the impact our businesses have on the environment.

### Non-dig / low-dig technologies and techniques

It's our responsibility to keep our networks in a safe condition. Our maintenance programme involves replacing older metallic pipes with a more suitable and durable modern material, usually polyethylene. We recognise the impact we have on highways, communities, businesses and homes and we're minimising this through non or low-dig techniques such as Core and Vac and innovative solutions including Cisbot technology and our 500m pipe coil trailer – both **better for the environment and cheaper than traditional methods.**

Non-dig techniques lead to greater lengths of mains being replaced compared to using open-cut methods of pipe being laid across the UK – **pipe insertions are a quicker, more efficient and environmentally friendly** way of replacing a gas main and reduce the number of planned interruptions our customers face, the volume of excavations we need to make and our social impact. The method is cheaper and the benefits we achieve in turn can be shared with consumers.

### Core and Vac

Core and Vac is an excavation tool that allows us to remove a small core from the highway to access a leak. This circular section is replaced as soon as the leak is dealt with rather than excavating large areas of road surface then waiting for up to five days for the hole to be backfilled, reducing the environmental impact of each excavation, time spent on the highway and disruption to road users and local communities.

The successful development and trialling of **Cisbot** technology – robots inserted into gas pipes to repair them – reduces the number of required excavations and prolongs the life of our gas mains while saving time and material resources. Compared to traditional open cut methods, our **trials have shown less time spent on the highway and a reduction in required excavations.** This in turn has a dramatic beneficial effect on the social and environmental impact of our work.

We've introduced the UK's first pipe coil trailer capable of dispensing 500m coils of pipe, which **reduces pipe wastage by 20%** and allows 1,000m meters of pipe insertion from a single pit (500m in each direction). Over the course of a year, **a single trailer can save 56 tonnes of carbon.** The technology has now either been adopted by or is undergoing trials in all networks.



*The Core and Vac process taking place.*

### Pipe and trailer technologies

Building on these technologies, we are keen to see the output of Tier One Replacement System (TORS) summer trials. This new technology – which could be available as early as 2016 – is a tethered robot with the ability to internally locate and replace a service without any need for excavation, providing huge carbon savings to all networks.

- **We are currently operating at a combined insertion rate of over 90%;**
- **For each 1% insertion over open cut, 172 tCO<sub>2</sub>e is saved from reduced spoil, backfill and haulage;**

The successful trials and availability of Core and Vac and 500m pipe coil trailer technologies means we have **reduced our carbon impact by over 7,845 tCO<sub>2</sub>e.**

### Shrinkage and leakage

When it comes to shrinkage and leakage, we replace pipes as part of our standard operations but this alone is not enough – 98% of our carbon footprint comes from shrinkage and leakage issues. The Shrinkage Forum gives all interested parties the opportunity to discuss this issue and share best practice when it comes to loss of gas from our networks through either leakage or unregistered use.

Working together to address the issue of Shipperless and unregistered sites, where properties are either not correctly registered on our data systems, or may be taking gas illegally, **has allowed us to clear almost 50% of the 22,817 targeted Shipperless and unregistered sites.** We've identified root causes, fixed process deficiencies, driven changes to Network code (the industry framework, which all gas shippers and gas distribution networks sign on to) to reduce unregistered use and agreed targets to investigate. **We're proactively working with the industry to tackle the remaining 50%.**

We are currently working with the WRC (previously known as the Water Research Council) to trial Cured in Place Pipe (CIPP) as an alternative to the disruptive traditional process of replacing gas mains and to reduce the effect of leakage on our carbon footprint.

CIPP uses a technique where a host pipe is lined with a flexible tube impregnated with resin, which produces a tough pipe lining when heated. We are currently learning from our live site trials, which have proven to be successful but require some technical issues to be resolved before it's ready to be rolled out.



The CIPP technique being monitored by engineers.

As we move forward, we're continuing to actively seek out and trial innovative technologies to repair and replace our current gas infrastructure as efficiently and effectively as possible.

**Successfully going beyond our baseline targets shows our commitment to outperforming our current RIIO-GD1 targets.**

## ► Standards, practices and reporting

When it comes to standards, practices and reporting, we need to be accurate, consistent and cohesive within our group, the industry and beyond, and demonstrate that reporting adds value.

We're sharing our expertise with partners including regulators and the Government to set the standards that we work to.

The Energy Efficiency Directive (EED) covers virtually all aspects of the energy system from supply, transformation, transmission and distribution to consumption. It provides indicative national energy efficiency targets to ensure we achieve the European Union's 2020, 20% headline target on energy efficiency and pave the way for further energy efficiency improvement beyond this date.

We worked with National Grid Gas Transmission, ENA, Ofgem and DECC to develop reporting that demonstrates the environmental efficiencies delivered so far through the current price control, those to be delivered between now and the end of the price control period in 2021, and other measures that could deliver further efficiencies well in to the next price control. We **helped interpret the requirements of the Energy Efficiency Directive, shape the initial scope of Ofgem's report and draft Ofgem's report** ready for a stakeholder consultation period.

Our collaborative approach to reducing carbon emissions both today and in the future means we're setting standards at a national level, learning from each other and informing our partners.

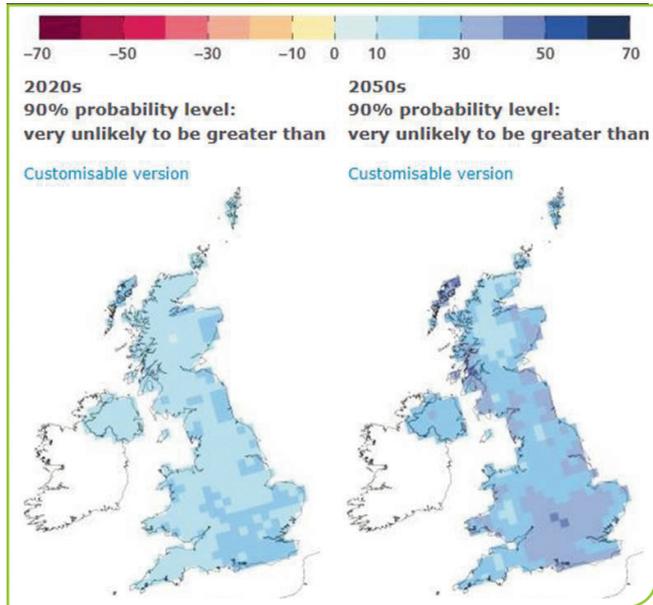
In order to support the use of biogas generally and the entry of biomethane into the network, we worked with IGEM to develop standards for biomethane network entry and biogas entry. These standards, known as TD16 and TD17, outline the pipeline standards required in order convey biogas from production plants to a suitable point of use in the industrial/commercial sector or upgraded to biomethane, for use as vehicle fuel or injection into the natural gas network.

Through ENA's Biomethane Campaign, of which we are members, we've **introduced consistent Voluntary Standards of Service (SOS) for biomethane connections.** This means wherever the connection is happening in the country, there is a consistent service and sharing of connection performance and that we, in turn, are making sure the standards are working for our customers.

To make sure the Department for Environment, Food and Rural Affairs (DEFRA) receives a coordinated voluntary report about the risks we face from climate change, we worked together to develop a united industry response. As owners of critical energy infrastructure, we **agreed to use climate change forecasts to monitor risk and make adaptations to meet a worst-case climate scenario in 2050.**

This world-leading forecast dataset is a very recent consideration within asset management and can enable us to future-proof our networks. Rather than just mitigating current risks and impacts from flooding, river erosion and land movement, we can respond

proactively to intervene where data indicates wider, deeper, more frequent flooding, greater rates of river erosion and more frequent occurrences of land movement where live gas assets have the potential to be compromised in a future climate.



% Change in Winter Rainfall from 2009 to the 2020s and 2050s.

We shared our methodology and approach with electricity distribution and have since **identified further opportunities for collaboration with other reporting authorities, such as the Highway Authorities** to help shape emergency response to a flood event that has affected the road network.

The joint reporting process has highlighted the need for improved data to assess risk. This area of work is ensuring we are all prepared for future forecasted changes in our climate, that our consumers can have the confidence to rely on a resilient and efficient gas network in the event of future climate change scenarios and that we are contributing more widely to a more climate-ready UK.

One GDN has built on the adaption reporting by developing an innovative approach to incorporate climate change forecasts into contaminated land assessment, remediation and regeneration solutions. This emerging area of environmental impact assessment mitigates the introduction of significant environmental risks from future climate predictions. The flagship project was showcased to GDNs, IGEM members and Environmental Regulators and is being built into standard practice by all networks.

## ► The future of heat

Whatever energy will look like in the future, we have a key role to play. Recent government publications highlight the range of options and issues associated with providing heat, cooking and hot water to homes, business and industry in the future. Currently 85% of Great Britain's population is connected to the gas network. We're helping to inform the debates about the future and make sure that when the gas network is needed, it is secure, sustainable and efficient to support customers and businesses across the whole of Great Britain.

Gas is an intrinsic part of a future sustainable energy mix and together we can shape the role gas and the networks will play as we move towards 2050.

## Greener gas

To reduce the environmental impact of natural gas (methane) we're working to increase the volume of 'green gas' that enters our network. As leaders in the development of green gas, we're working with the gas industry, Government and Regulators to develop the policies and regulations in this area. The number of biomethane connections is increasing and, as this process speeds up, we're ready for it.



Poundbury, the UK's first full-scale anaerobic digester and biomethane-to-grid plant.

We currently have **26 sites with the potential to inject biomethane into our network** and, over the last two years, we have received more than 500 biomethane enquiries each year. **In 2015, we predict another 29 sites will be ready to be connected.**

To unlock the full potential of large volumes of biomethane, we're looking for and removing any potential barriers to biomethane entering the network. ENA's Biomethane Campaign recognised that if the allowed limit for oxygen in biomethane were raised, this would reduce cost for producers.

As there was no appropriate evidence available, we commissioned a study that provided the necessary investigative work on metallic pipes to enable the HSE to grant a class exemption to the oxygen content of gas entering our networks.

The **next step is to focus on reducing the cost of biomethane entry by modifying the current process**, which requires producers to measure the calorific value of the gas being injected.

We are also working with DECC, Ofgem and the Energy Institute to reduce costs to the industry and simplify obligations for smaller entry sites to encourage more players to enter the market.

We recognised and drew attention to the need to set a limit on the volume of Siloxanes in the biomethane injected into the grid. These substances are used in products such as deodorants and shampoos and are found in biogas from sewage treatment plants and landfill gas. Siloxanes can create problems when burned in gas engines or combustion facilities. It is now an HSE directive that all biomethane developers must have active carbon filters on every site, rather than costly measurement equipment.

**Future plans** for our biomethane work include a scheme which will **use the excess heat created from these sites, which is transferable via hot water, for district heating.**

Meeting the UK’s 2050 decarbonisation target will require collaboration, innovation and the use of new technologies in traditional roles. Hydrogen, which produces no greenhouse gases when burned at point of use, could play a vital part in a greener future,

particularly if transported via our network. There are currently a number of technical, regulatory and safety issues associated with the transportation and use of hydrogen as part of our networks that we are working to overcome.

## ► Preparing for greener gas

ISSUE	STAKEHOLDER	SOLUTION/ACTION TAKEN	BENEFIT DELIVERED
No standards for the definition and use of green hydrogen	DECC Potential buyer	We are working with DECC on its Green Hydrogen Standards Working Group to set the standards	<b>Helping DECC create a market</b> by reassuring potential buyers about its green credentials
Lack of understanding about hydrogen’s potential value	Industry	We’ve taken part in the Industry Project Advisory Board for University College London project ‘Hydrogen’s value in the energy system’	<b>More information about value of hydrogen</b> as part of the transition to a low carbon economy. Analysis about the supply chain <b>required to produce/deliver hydrogen into the energy mix</b>
Lack of standards for the make-up of biogas	Industry	Through the Stakeholder Advisory Board for the European Metrology for Biogas project we’re developing a standard for determining the make-up of biogas to meet requirements	<b>Readiness for biogas injection</b> into the gas grid and as a transport fuel across Europe
Safety concerns around the accidental release of hydrogen	Industry	We’re advising the stakeholder group for the Hyhouse Project by KIWA Gastec to help the group produce a definitive guide about the relative safety of hydrogen	<b>Evidence</b> to reassure the industry that <b>hydrogen is a relatively safe green gas</b>

**When it comes to hydrogen generation and storage, we’re aiming to become the enabler to help DNOs and GDNs work together to make the process smoother.**

### A fragmented energy industry

Going forward, homes, business and industry need sustainable and secure energy sources that offer them value for money and security – particularly at peak times during cold winter months.

Energy and cost are key concerns for customers but currently they are unaware of the range of options available to them. Companies that could provide the solutions also find it difficult to access customers and funding.

In response to this challenge, following a Great Britain-wide innovation summit led by the CEOs of our four companies, **we have developed the innovative and ambitious Ignite project, to provide access to cheaper alternative forms of energy.**

We’ve worked with EIC to develop concepts relating to Social Energy, focusing on evolving a strategy for developing the **UK’s first digital collaboration platform, bringing together the creation, design and development of new energy initiatives that solve customers’ evolving energy needs.** It puts the power into the hands of our customers and gives them

opportunities to choose and source their own energy. The next stage is to **empower the key stakeholders necessary to bring these new energy projects into a technical and commercial reality.**

We have an important role to play in this ongoing journey, and through the work we are doing we feel we have the right structure in place to educate, inform and deliver for homes, business and industry – a journey that we’re embracing head on.

### ► What next?

Homes, business and industry require secure, sustainable and affordable energy now and into the future. Through the collective and innovative work we are doing on the future of energy, we feel we have the right structure in place to educate, inform and deliver for our customers as we move forward. This is an exciting and on going journey with many opportunities and challenges – and one that we are embracing head on.

## ► Carbon Monoxide: Our mission

We will work together to do all we can, as networks, to make sure that no person is harmed through accidental CO poisoning.

We will achieve this by:

- Using education as a means to raise awareness of signs, symptoms and how to stay safe – inspiring behaviour change;
- Supporting and trialling innovative approaches to improve both detection and awareness;
- Lobbying to shape policy and legislation to deliver a step change in CO safety and subsequent reduction of incidents

## ► Fighting CO together

**We're working to keep our customers and our employees safe.**

We are pooling our resources and working hard to address the issues surrounding the dangers of CO poisoning.



*Emergency Engineer raising awareness with a young family as part of an emergency visit.*

We're making a difference by raising awareness of this silent killer, sourcing and trialling new and innovative approaches and lobbying for change. By using the power of four and working with all fuels we are working to eradicate CO poisoning in all its forms from all its sources.

As individual gas distributors, we can achieve great things, but together we can really help to drive momentum forward through joint campaigns to raise awareness, by bringing key stakeholders together at the annual CO conference, developing innovative technology to educate students about CO or supporting our most vulnerable customers.

We are tapping into the power of our wider networks, using our success stories and events to engage with gas suppliers and deliver a campaign with the big six to harness the 'power of 10'.

## ► Making a difference through education and awareness

Working together means we can reach more people with vital safety messages and awareness about CO.

To stop people being accidentally harmed by CO, we are committed to helping them understand the dangers. One of the ways we do this is through raising awareness and inspiring behaviour change through education. We have developed a matrix of our initiatives, recording factors including age and demographic reach so that we can identify the most effective awareness initiatives and any gaps in reaching key audiences. It is essential that the way we measure and report on the awareness activities that each of us run is consistent so that we can all understand, compare and learn from the results.

Once an education scheme being trialled by one GDN proves to be successful, we pool resources to support collectively as we have successfully done with the CO Gas Safety School Poster Competition or share the cost as we have with the national annual CO conference.

Working together helps us reach more people, trial more ideas, measure them in a consistent and meaningful way and, through doing this, change behaviour. In 2013/15 our schemes delivered:

- **14,777 survey responses;**
- **14,715 CO alarms given to vulnerable customers;**
- **8.61 average rating of CO awareness following our interaction (on a scale of 1-10);**
- **39.4% increase in CO awareness as a result of our interaction;**
- **85% of people likely to take further action on CO**

The CO initiatives we've been working on in the first two years of RIIO GD1 include:

### Smart Phone Applications (apps) and Games

One GDN developed an innovative and interactive gaming app, iCOP, in response to Gas Safety Trust (GST) research which showed that 18 to 24-year-olds are particularly vulnerable to CO poisoning due to a lack of awareness.

**iCOP has been downloaded over 35,350 times** and, out of 786 responses to a quiz at the end of the game, 80% said they had an excellent knowledge of CO after playing the game and 60% said they would purchase a CO alarm.

The quiz highlighted that 25% of users didn't think CO presented a danger outdoors. This was supported by research from GST, which pointed to a lack of understanding of the risks of CO in camping and boating environments.

We're now collaborating to cover these additional risks with the **launch of iFEST this summer, a game to raise awareness of the dangers of CO in outdoor scenarios, specifically festivals and camping.** It will tackle safety messages about the use of BBQs and gas camping equipment in enclosed spaces, as well as covering the signs and symptoms to look out for.



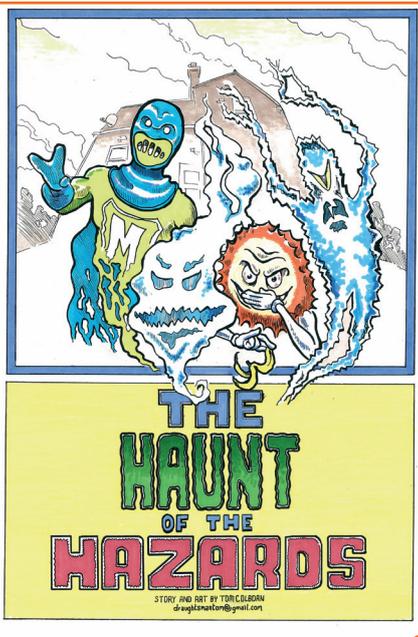
iFEST characters suffering from signs and symptoms of CO poisoning.

We decided on a mobile website providing access to smarter insights about the user, including age, location, the length of time spent playing the game and level of understanding. The approach also improves shareability; an important feature highlighted during focus groups for the target audience's continual use of social media channels, increasing opportunity for wider audience reach and engagement. Players are encouraged to share their festival character – inviting friends to find out 'What festival-goer are you?' through iFEST. A wide range of marketing activity will support the game.

We have brought more than 50 young people together in six focus groups, which have provided insight to help shape what iFEST will look and feel like.

### Comic Book

The Gas Industry Safety Group (GISG) commissioned the Haunt of the Hazards comic book and we jointly funded it. The comic book was produced in response to an identified lack of engaging materials covering a range of safety issues for Year 4 children (8 to 9-year-olds).



Some 5,000 copies of *The Haunt of the Hazards* so far have been distributed across the networks.

The book was created on the back of the Monoxide character developed for the campervan used by the Dominic Rogers Trust in 2012 to tour festivals to raise awareness of CO.

We worked with GISG and the illustrator who drew the Monox character and developed this into a full strip, expanding the villain characters to include other hazards. During

the development process, we shared our thoughts with a group of children who gave useful feedback, which helped us shape the direction. Distribution has been through existing education campaigns, council partnerships, local Brownie and Cub groups, and Mains replacement schemes.

<sup>1</sup> Reproduced with the kind permission of CO Gas Safety.

### Charity support

We're inspired by the passion and commitment of smaller charities, which were often set up by someone who has been personally affected by CO poisoning.

Their knowledge is invaluable and adding our voices gets their messages to a wider audience. Working with these trusted partners means we can make best use of both our own, and existing, charity awareness campaigns.

A good example of this is our combined support for the CO Gas Safety Schools' Poster Competition. We have been able to support this successful campaign with both funding and resources, resulting in a bigger and better campaign each year.



One of our proud winners outside the Houses of Parliament.<sup>1</sup>

### CO Awareness events

We use every opportunity to get the safety messages associated with CO out into the community all year round – through press coverage using established awareness weeks or creating our own events.

- We recognise that for those in fuel poverty, money is tight and therefore they are less likely to have the funds to purchase a CO alarm or have their appliances serviced. Because of this we have had a presence at both the Royal Society for the Prevention of Accidents (RoSPA) and National Energy Action (NEA) annual conferences to get our messages across and raise awareness.
- We supported Dominic's Day on 16th April 2014, a nationwide CO awareness day in memory of Dominic Rodgers who died of CO poisoning. We raised awareness externally through press and social media activity and also within our organisations where we surveyed all our employees and received 1,200 responses. We found that 76% owned a CO alarm and, of the 24% who didn't, half said they would be likely to buy one. We also asked more specific questions to gauge where the gaps in our knowledge were and we're working hard within our own organisations to increase the capability and knowledge of our own people.

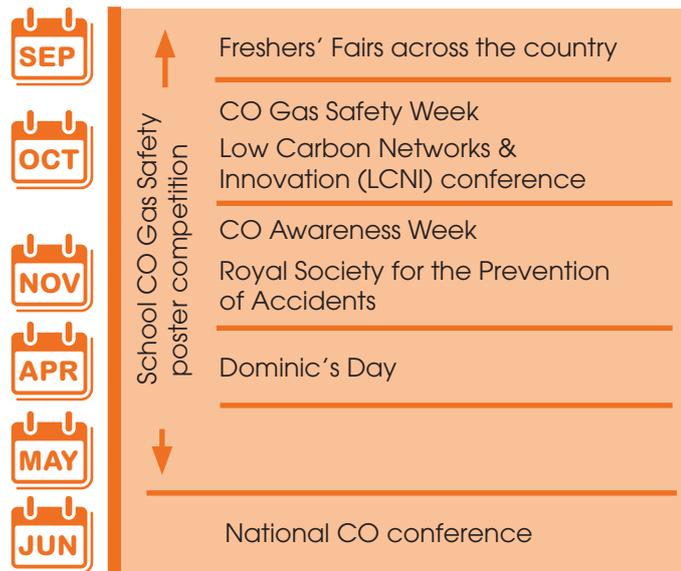
### TWITTER FEEDBACK



The group and wider industry active on Twitter supporting Dominic's Day.

- We supported the national CO Awareness Week in November and Gas Safety Week in September. We're working hard by promoting data and information to highlight the dangers of CO with the public and within our own organisations.

## TIMELINE - snap shot of activity



## ▶ Driving improvement through technical innovation

We're proactively searching for and trialling new approaches to keep our customers and our colleagues safe.

We're sharing what we're learning and looking for the next steps together. Our collaborative approaches include:

### Smart CO alarms

Nearly half of gas engineer CO call-outs are caused by faulty CO alarms, wasting time and resources that could be better spent for our customers. To help solve this problem, we are working with the Energy Innovation Centre (EIC) to trial Smart CO alarms.

These low cost, easy-to-install alarms are battery powered and use 3G communication so they can be remotely monitored for health, alertness and battery status as well as real-time monitoring of actual CO levels. **We are now trialling 600 alarms with specific vulnerability demographics** targeted to cover a wider customer base to assess the benefits for each group as well as reducing false alarm call outs. Other benefits include monitoring low-level exposure so trends can be spotted and risks to public health identified and that CO levels can be monitored even when a house is empty.

- **40%<sup>2</sup> of gas engineer CO call outs over the first two years of RIIO-GD1 were caused by faults with the CO alarm - one of the key benefits this work will deliver will be a reduction in the number of call outs due to non CO related issues with CO detectors, typically caused by low battery condition or sensor faults.**

- **600 social housing properties, student accommodation and homes of the housebound elderly will benefit from smart CO alarms as part of the trial.**

<sup>2</sup> Data from one GDN

<sup>3</sup> Estimated national number. Annual figure of 12 incidents validated by 2 of the 8 networks and used as a multiplier to reach.

<sup>4</sup> <http://www.ons.gov.uk/ons/rel/census/2011-census/population-estimates-by-five-year-age-bands--and-household-estimates-for-local-authorities-in-the-united-kingdom/stb-population-and-household-estimates-for-the-united-kingdom-march-2011.html>

## Personal CO Alarm Monitors (PAMs)/ Dual Detection Equipment

Recommendation 8 of The All Party Parliamentary Group (APPCOG)'s 2011 Report: Preventing Carbon Monoxide Poisoning was that "GDNs should ensure that all Gas Emergency Service personnel are equipped with either personal carbon monoxide alarms, carbon monoxide detection equipment, or both". We endorsed and actioned this in 2012 and all emergency engineers are now equipped with this vital, life-saving technology.

We've been tracking the number of incidents where CO has been recognised on a call as not the primary reason for our attendance. Over a two-year period, the equipment has helped us **identify the presence of CO in an estimated 192<sup>3</sup> cases, which otherwise may not have been identified.** Based on Office of National Statistics data showing an average of 2.3 people per household<sup>4</sup>, more than 440 people whose lives could have been adversely affected by CO are no longer at risk due to the introduction of this equipment.

The 2013 CO conference gave us the opportunity to share the benefits and importance of this equipment to our first responder colleagues such as Fire and Rescue.



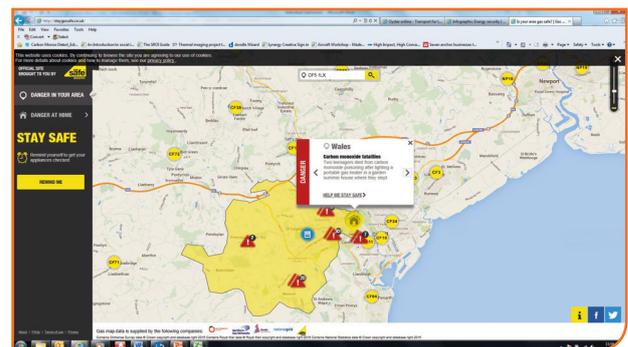
The CO conference provided a platform for further relationships being built between the gas and emergency services.

### Gas mapping tool

Developed using our data as part of the Gas Safe Register's behaviour change campaign, it helps our messages to reach customers that we might not see face to face.

The gas map uses the information we collect as part of our emergency callouts and is being used to improve customer safety by showing neighbourhoods where immediately dangerous/at risk appliances have been found. It is designed to motivate people to change their behaviour as well as raising awareness and links to an annual gas safety check so people can sign up for an email or SMS reminder when their appliances are due a check. Since launch in 2013:

- **280,000 people have visited the gas map website**
- **Over 20,000 appliance check reminders set up**



The gas mapping tool.

### The future

To continue to take the fight to CO, we need to be ahead of the game. We're not only trialling new approaches and technologies – we're actively searching for the next idea which could make a real difference to the safety of our customers. We're driving innovation and working with small and medium enterprises (SMEs) who could hold the key to the future of CO safety.

We are working closely with EIC to help us match our main areas of concern with technologies they are developing. Through EIC, we have access to over 1,000 SMEs who could bring dynamic solutions to the issues we face and make our customers' worlds a safer place to live.

## ▶ Lobbying for change

When it comes to lobbying for change, four voices are louder than one. Working together, speaking with one voice, we can lobby and influence the national agenda.

As GDNs covering Great Britain as a whole, we are in a unique position, and it is important that we can leverage this to bring about change for the better. We are using established routes and building new strategic partnerships to support our vision of eradicating accidental harm from CO and make change happen.

### Collaborative campaigning – the power of 10

Following a meeting with Barry Sheerman MP, the big six suppliers and representatives from other key fuels, there was a consensus that more could be achieved through wider collaboration.

We have now successfully established a campaigning sub group of the CO All Fuels Forum on which we are taking a lead to involve suppliers and harness the power of 10 (4 GDNs and the 'Big Six') to have an even greater impact.

The pre-session survey for our collaborative campaign workshop asked: "If you were planning a CO project or campaign and needed to prioritise your audience – how would you rank them in order of importance?" Respondents identified those living in rented accommodation as one of the most vulnerable, with landlords ranking first (an average of 9.64) out of 13 identified audiences.

This feedback informed our work with landlords and policy makers. We collaboratively engaged the National Landlords Association (NLA) to sponsor a quarterly whole page advertisement to raise CO awareness among this key target group.

NLA quarterly advert.

We were delighted when the Government recently announced that from October 2015, it will be mandatory for private landlords to install both smoke and CO alarms in rented properties as an amendment to The Energy Act (2013).

We used our involvement with GISG, the All Party Parliamentary Carbon Monoxide Group (APPCOG) and the CO All Fuels Action

Forum to engage at the highest level and influence this important change in legislation. Sitting on these committees means that opinions from across the industry are heard as one powerful voice.

We were publicly thanked for our support of a new inquiry by co-chair Barry Sheerman MP at the launch of the inquiry report, 'From Awareness to Action'. The report follows a nine-month inquiry process, which saw us collaborate with an advisory board including academics and parliamentarians to talk about sources of CO and interventions to promote safety. The report lists 21 recommendations for improving CO safety, which will be taken forward by the APPCOG and the CO All Fuels Action Forum. We have used our role in this Forum to support the shaping of energy bill amendments and raise the profile of CO within Green Deal assessments.

### Conferences

We continue working on new ways to push our agenda. The CO Ignorance Can be Fatal Conference allowed us to raise the profile of the issue within our regions and gather lobbying support.

The first CO conference was arranged, developed and delivered by one of the GDNs in 2013 and opened the door to the formation of new partnerships for our group such as working with fire and rescue services sharing best practice and learnings around personal alarms and improving detection for first responders.

- 212 delegates attended
- 97% said the event met or exceeded expectations
- 84% requested the event be annual



“ [The conference] will be an invaluable resource for anyone looking to gain an understanding of the serious threat posed by CO poisoning. ”

Barry Sheerman MP

Building on what had been learned from the 2013 event, we worked with IGEM and the All Fuels Action Forum to deliver the 2014 **CO Knowledge is Power – Educate, Innovate, Eradicate** conference.

**ENA Low Carbon Networks & Innovation Conference** – attending the conference was a first for us and created an opportunity to appeal to the academics and other attendees to help us keep developing new ways to fight the dangers of CO. We demonstrated our openness to innovative ways in achieving our goals, and our desire to work with other partners to develop new technologies keeping customers safe.

## ▶ What next?

We're proud of how far we've come as a group in the fight against CO but there is so much further we can go. We are now commissioning a piece of research reviewing the current understanding and awareness around CO across the UK, which will provide data that we can compare with similar research from five years ago. The results will be used by our established groups to help in our ongoing mission to drive awareness and behaviour change.

Collaboratively, we will continue to focus on education, awareness, innovation and lobbying to keep customers safer from this silent killer.

## ► Meet the GDNs

### nationalgrid gas distribution

National Grid Gas Distribution own and operate four of the eight regional gas networks in the UK – the East of England, North London, North West and West Midlands – transporting gas safely, reliably and efficiently to our customers through a network of 131,000km of pipes to around 11 million homes, businesses and schools. Our job is

to make sure people are connected to the gas they need for heating, cooking and to keep their businesses operating. We are committed to putting our customers and stakeholders at the heart of our business, focusing on what matters most to them, and that we are trusted to listen, discuss and act.

### Northern Gas Networks

Northern Gas Networks is the North of England's gas distributor responsible for transporting gas to 6.7 million customers in the North East, northern Cumbria and much of Yorkshire. Established in 2005, we own and operate an extensive distribution network, comprising 37,000 kilometres of gas mains,

enough to stretch from Leeds to Sydney in Australia. Safety, reliability, integrity and great customer service are at the heart of our business. We're committed to delivering great value to customers and creating a wealth of social and economic benefits to the region that go way beyond our core business.

### SGN Your gas. Our network.

We manage the network that distributes natural and green gas to 5.8 million homes and businesses across Scotland and the south of England. Whoever your supplier is, our pipes deliver gas safely, reliably and efficiently to every one of our customers. It's your gas, in our network.

Our promises to our customers shape who we are. They ensure we employ the highest safety standards, strive for the best levels of service and put customers at the centre of everything we do. We also know we are expected to do our work in a way that causes minimum impact on our environment.

### WALES & WEST UTILITIES

At Wales & West Utilities our job is 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 over 7.5 million people within our area rely on us to do so. Our dedicated team manages a network of over 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 gas network, and connecting new customers. Delivering a safe and reliable gas supply is our number one priority. This centres around the communities our infrastructure serves. We are always looking for new and innovative ways to work with our stakeholders to improve our responsible business practices, reduce our impact on customer bills and that of our operations on the environment.



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