Quality of Service Discretionary Reward Scheme 2009-10
National Grid Gas Distribution

Initiatives which Reduce the Environmental Impacts of Gas Distribution

"National Grid is committed to playing its part in addressing climate change…"

National Grid has set a target of 80% greenhouse gas reduction across its businesses by at least 2050, with a mid term reduction target of 45% by 2020. As well as implementing annual carbon budgets across all our operations from 1 April 09 and aligning emissions reductions alongside customer service, reliability, safety and financial performance management, National Grid has undertaken a number of specific initiatives within the UK Gas Distribution business. These are described below.

Gas Distribution Initiatives 2009-10

Distribution Pressure Reporting System

Through 2009-10, National Grid has invested around £2m in establishing a fully integrated Distribution Pressure Reporting System (DPRS) for the reporting and management of system pressures across our four diverse Low Pressure Distribution Networks.

This innovative enhancement gives new functionality and links together "self-learn" devices installed on around 5,500 critical pressure governors, (out of a total population of around 8,000) to a central data hub. DPRS brings a range of benefits which reduce the environmental impact of our Gas Distribution business in the UK and include:

- Centralised daily reporting – Allows close monitoring and optimisation of system pressures, an equivalent reduction of 43,000 tonnes of CO2 per year and a corresponding reduction in public reported gas escapes.
- Leakage data – High quality system pressure data both develops and supplements our low-pressure Leakage Model data, improving shrinkage measurement.
- Medium Pressure Optimisation – DPRS gives visibility of pressure data at the extremities of critical parts of our medium-pressure (MP) system tier, e.g. in North London and central Manchester. This enables us to proactively optimise MP system pressures in these areas, the benefits of which are not reflected in the Leakage Model calculations. This is estimated to have reduced MP leakage rates in the London Network alone by approximately 32%, equivalent to a CO2 saving of just under 6,000 tonnes.
- Remote Access & Control – Centralised networked alarm monitoring and control enables the efficient and effective resolution of pressure-related issues. Out-of-hours support via remote access across our large geography, using on-line mapping enables rapid, targeted response where urgent local intervention is needed, minimising vehicular emissions.
- Registration of replacement projects and repairs on the integrated system enables centrally controlled real-time pressure optimisation on local networks during these operations, minimising leakage.

As part of our normal business processes, a post-investment appraisal will be conducted during 2010-11 to identify and inform any further improvements.

Leading the way on Renewable Gas

National Grid's commitment to play our part in addressing climate change is demonstrated by our pioneering work to initiate and stimulate the development of renewable gas production and utilisation via gas grids, thus providing the market foundations from which all GDNs can build.


Biogas plant at Davyhulme

We produced the first UK study into the potential benefits of and requirements for renewable gas in the UK (January 2009). This identified that the injection of renewable gas (biomethane) into our gas networks could potentially meet up to 50% of residential gas demand and could hence make a significant contribution towards meeting UK climate change targets.

Biomethane will provide a great solution for delivery of large-scale renewable heat; helping to address the escalating issues of security of supply, the management of waste and mitigating the high future cost for customers of reinforcing electricity grids for future heat demand by using existing gas assets that customers have already contributed to.

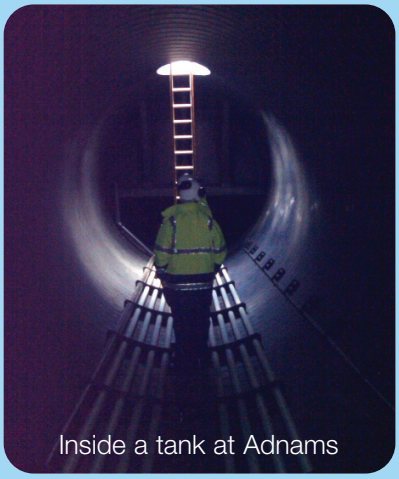
Influencing the Renewable Heat Incentive (RHI)

Our initial study highlighted the vital need for a commercial incentive to support the development of renewable gas production and injection and we have continued to support the Department of Energy and Climate Change (DECC), around their publication of the Renewable Heat Incentive (RHI) consultation (February 2010), with detailed cost information on grid injection and on the potential level of resources. We are also working alongside the Renewable Energy Association (REA), to influence an appropriate level of incentive within the RHI for April 2011. We also led the input into the Government's biomethane producers' guide, published in July 2009.

nationalgrid
The power of action.℠

Making it Happen – Proving Concepts and Removing Barriers

National Grid has, in partnership with United Utilities, signed the first agreement with the Government-funded Waste & Resources Action Programme (WRAP) to build a trial renewable gas production and injection facility at Davyhulme waste water treatment works near Manchester. Working closely with the HSE and the Environment Agency respectively we obtained the first exemption on oxygen limits specifically for this trial and the first "End of Waste" status, without which all renewable gas users would have required a waste licence!


Inside a tank at Adnams

Working with Adnams Bio Energy Limited we have progressed plans for the construction of the enrichment and gas network connection equipment at their renewable gas production site in Suffolk. Commissioning of this facility is due to start in May, with grid injection of renewable gas commencing later this year.

Urban Energy Centre Concept

Working with engineering consultants, Mouchel, we developed an Urban Energy Centre concept model, setting out our vision for providing renewable heat through an integrated waste management solution, in order to stimulate development of the renewable gas market. This was published and promoted via an external press release in October 2009.

Speaking Out…

To demonstrate our commitment, Senior Managers from National Grid's Sustainable Gas Team have spoken at several Government and industry conferences ,and on TV during 2009-10 on the advantages of and potential for the production and grid-injection of renewable gas.

Listening and Sharing Learning…

National Grid is a member of the International Energy Agency's Task 37 Working Group, which exchanges information and promotes the development of energy from renewable gas sources. We are members of the REA's biomethane tariff working group and are also working with other GDNs through the Energy Networks Association to identify and address barriers to renewable gas grid-injection and utilisation.

Enquiries to Date

In 2009-10 our Network Strategy and Sustainable Gas Teams provided key information in response to over 40 enquiries from potential renewable gas producers

Reducing the Impact of Streetworks

National Grid, in partnership with a range of companies, is constantly working to develop and/or utilise new best practice technologies to improve safety and reduce the environmental impact of our presence in the street. Among the new technologies being deployed on trial in our operations during 2009-10 are:

Keyhole Excavation and Repair

Traditionally, working on any large diameter main would involve the excavation of a large area to at least the full depth of the pipe (up to 3.5m x 2.5m x 2.4m), causing substantial local disruption, risk of subsidence and damage due to pipe disturbance, together with the environmental impact of large amounts of excavated material.

New technology such as "keyhole excavation and repair", "beam-drilling" and "back-of-socket pressure pots" allows repairs and other works to be carried out by exposing only the crown of the main through a 500mm square or round aperture, minimising the scale of works and the associated disruption. Excavation is made via vacuum technology and the material is bonded with epoxy resin to provide a complete and robust reinstatement of the site

These techniques have been successfully deployed in projects at a number of locations across our four Gas Distribution Networks in 2009-10 substantially reducing the duration of work and hence the volume of any unavoidable leakage of gas into the atmosphere,

Standard Excavation Template

Widely implemented across our operations during 2009-10, this is a simple plastic template that enables standardised marking for excavations on smaller-diameter mains, reducing disruption, safety risk and the environmental impact of works.

"Trenchlink"

National Grid is utilising the TrenchLink 500 max patented modular steel plating system for the slippage-free covering of linear excavations. Its use can halve the time required to perform a road-crossing gas connection, whilst enabling traffic and pedestrians to keep moving safely during works. We are working closely with TrenchLink to produce a range of modular plating systems to enable a diverse range of excavations and trenches to be covered.

Reducing and Recycling Waste

National Grid operates a recycling arrangement with Radius, our supplier of polyethylene (PE) pipe recycling around 3,500 tonnes of PE in 2009-10 for re-use in the manufacture of ducting for electricity cables.

Building on work done in 2008-09, our UK gas distribution business has a target to achieve 100% recycling of road spoil by 2010-11. In the 11 months to February 2010, a road spoil recycling rate of nearly 90% has been achieved, saving around 500,000 tonnes of material from land-fill.

We are working in partnership with Biffa waste management to eliminate all divertible waste from landfill in 2010-11. We have recycling facilities across 70 gas distribution sites, including facilities for paper, cardboard; metals and timber, etc. and we are rolling out Dry Mixed Recycling facilities across all gas distribution sites during the next 3 months.

See separate document for supporting information

nationalgrid
The power of action.℠