ofgem

Making a positive difference
for energy consumers

Creating Britain's low carbon future. Today.

Britain's energy mix is changing and the way our gas and electricity networks operate needs to change too. Ofgem's Low Carbon Networks (LCN) Fund and Network Innovation Competitions (NICs) provide essential backing to innovative projects which aim to help make the energy networks smarter, accelerate the development of a low carbon energy sector as well as delivering financial benefits to consumers. The projects help develop crucial knowledge and expertise which is being shared across the industry. In 2013, the LCN Fund's fourth year and the NICs' first, ten innovative projects will receive a total of £59.4m. See inside for more details.

LCN Fund
Low Carbon Networks

RIIO NIC
NETWORK INNOVATION COMPETITION

The Competitions:

The LCN Fund began in 2010 and will run until 2015, while this is the first year of the Electricity and Gas NICs. All three are designed to stimulate innovation by network operators. They do this by providing partial financing for ground breaking projects.

These projects will help the industry understand how to meet the changing needs of customers. They will also help the networks prepare for, and facilitate, the transition to a low carbon economy.

The competitions will help networks meet the challenges of a low carbon world by:

- Effectively connecting new low carbon sources of gas or electricity
- Meeting the needs of small-scale and intermittent generation
- Addressing an increase in the use of electric vehicles, heat pumps, smart domestic appliances and other low carbon technologies
- Using new sources of data to improve network performance
- Enabling customers to reduce their carbon footprint and cut bills by managing their energy demand.

2013 Competitions:

A separate independent panel of experts advises Ofgem on each competition to help us reach our decision on which projects should be selected for funding.

Proposals were judged against the extent to which the solution being trialled would:

- accelerate the development of a low carbon energy sector and have the potential to deliver net financial benefits to future and/or existing customers (in the case of the NICs, the panel also considered whether the project delivered other environmental benefits)
- impact on the operation of the network
- provide value for money to customers
- generate new knowledge that can be shared amongst all network operators.

Proponents also had to show that their project:

- will be delivered cost effectively
- demonstrates a robust methodology and readiness of the project
- involves other partners and external funding
- is relevant and timely.

This year's projects cover a diverse range of areas. For the first time electricity and gas transmission companies, as well as gas distribution companies, are competing for funding in the Gas and Electricity NICs, while DNOs will continue to seek funding in the LCN Fund until 2015.

All successful projects demonstrated a relevance to the challenges facing energy networks and an ambitious approach to tackling them.

The projects aim to:

- tackle real and immediate issues facing the industry
- share the information and expertise built up through the trials across the industry
- produce solutions to ensure the best value for the customer.

Projects looked to explore:

- the impact on the networks of new technologies
- how to manage the demand of customers
- how new technology can be used to complete network maintenance in new ways to minimise customer interruptions.

2013 Competitions

LCN Fund
Low Carbon Networks

RIIO NIC
NETWORK INNOVATION COMPETITION

Competition: **Gas NIC**

Project: Robotics

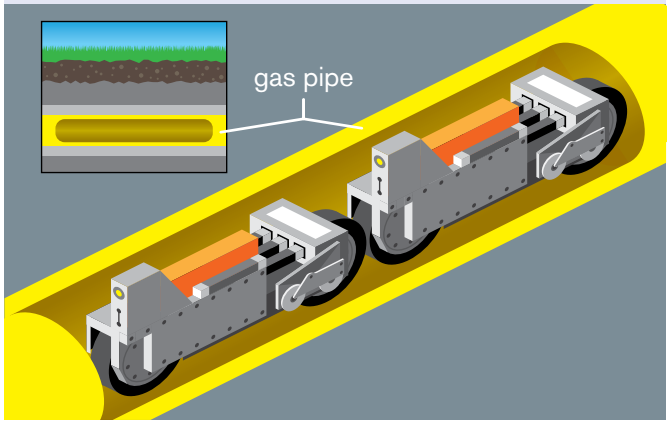
Company Name:
Southern Gas Networks

The Concept:
To develop a robot for monitoring, repairing, and reconnecting gas mains. This would reduce the need for excavations and roadworks.

The area: South East England

Amount awarded:
£6.5m (Total Project Cost £7.4m)

Period of Project: Two years



The project will aim to:

- demonstrate a new robot to repair and reconnect gas pipes
- incorporate sensor technology into the robot to monitor the state of gas mains
- develop a methodology for evidence-based replacement of iron gas mains.

Competition: **Gas NIC**

Project:
Opening up the Gas Market

Company Name:
Scotland Gas Networks

The Concept:
To test the safety and economic feasibility of widening the gas specifications in GB.

The area: Oban

Amount awarded:
£1.9m (Total Project Cost £2.1m)

Period of Project: Two years

The project will aim to:

- prove the financial benefits of widening the GB gas specifications
- test all appliances in Oban to prove the safety of putting wider standard gas into the network
- develop a statistical model for predicting the number of appliances in GB that will not work with wider standard gas.

Competition: **Gas NIC**

Project: BioSNG Demonstration Plant

Company Name:
National Grid Gas Distribution

The Concept:
To use household and industrial waste to produce a pipeline quality gas for use in people's homes.

The area: Swindon

Amount awarded:
£1.9m (Total Project Cost £4.3m)

Period of Project: Three years

The project will aim to:

- prove the concept and process of making gas from refuse
- develop understanding of how the process characteristics affect the injection of the end product into the network
- define the optimum operating parameters of the process.

Competition: **Gas NIC**

Project: Low Carbon Gas Preheating

Company Name:
Northern Gas Networks

The Concept:
To test the energy efficiency and performance of emerging gas preheating technologies.

The area: North East England

Amount awarded:
£4.8m (Total Project Cost £6.3m)

Period of Project: Three Years

The project will aim to:

- produce real-time data on the efficiency and performance of both existing and emerging preheating technology
- develop data on the whole-life costs for each technology to better inform investment decisions and reduce costs for customers.

Competition: **Electricity NIC**

Project: Multi Terminal Test Environment (MTTE) for HVDC systems

Company Name:
Scottish Hydro Electric Transmission

The Concept: Establishing a collaborative centre to simulate the impact of High Voltage Direct Current (HVDC) technology, a way of transmitting electricity over long distances, and understanding its impact on the network.

The area: Scotland

Amount awarded:
£11.3m (Total Project Cost £13.4m)

Period of Project: Seven years

The project will aim to:

- establish a collaborative test environment for simulating HVDC schemes and its impact on the transmission system
- simulate HVDC schemes involving a number of equipment manufacturers
- develop innovative network planning techniques.

Competition: **Electricity NIC**

Project: Visor

Company Name:
Scottish Power Transmission

The Concept:
Providing a new insight in the capability and dynamic performance of the system with the intention of improving network operation and planning.

The area:
Anglo-Scottish Border

Amount awarded:
£6.5m (Total Project Cost £7.4m)

Period of Project: Four years

The project will aim to:

- develop and trial an innovative Wide Area Monitoring system
- use data from Phasor Measurement Units in new ways
- develop new techniques for operating and planning the transmission system.

Competition: **LCN Fund**

Project:
Eta: Creating efficient distribution networks

Company Name: Electricity North West

The Concept:
Using innovative technology to manage voltage on low voltage networks, with the aim of creating capacity for low carbon technologies.

The area:
Manchester, Wigan and Wigton

Amount awarded:
£8.4m (Total Project Cost £11.5m)

Period of Project: Four years

The project will aim to:

- use new equipment to interconnect low voltage networks
- manage voltage across these networks to create capacity for low carbon technologies
- provide a lower cost alternative to traditional solutions to voltage constraints.

Competition: **LCN Fund**

Project:
Flexible Urban Networks – Low Voltage

Company Name: UK Power Networks

The Concept:
Investigate the use of Power Electronic devices to interconnect and manage low voltage networks, releasing spare capacity.

The area:
London and Brighton

Amount awarded:
£6.5m (Total Project Cost £8.9m)

Period of Project: Three years

The project will aim to:

- use new equipment to interconnect low voltage networks allowing controlled capacity sharing between substations
- manage thermal constraints on these networks to connect more low carbon technologies
- provide a lower cost alternative to traditional solutions to thermal constraints.

Competition: **LCN Fund**

Project:
Solent Achieving Value from Efficiency (SAVE)

Company Name: SSE Power Distribution

The Concept:
Investigate the use of targeted energy efficiency measures to alleviate network constraints.

The area: Solent

Amount awarded:
£8.3m (Total Project Cost £10.3m)

Period of Project: Four and a half years

The project will aim to:

- use targeted energy efficiency measures with domestic customers
- quantify customer responses to a range of approaches
- develop a network planning tool that incorporates the learning from this and other trials.

Competition: **LCN Fund**

Project:
Vulnerable Customers and Energy Efficiency

Company Name: UK Power Networks

The Concept:
Seek to engage fuel poor and vulnerable customers so they can benefit from energy efficiency and demand side response.

The area: London

Amount awarded:
£3.3m (Total Project Cost £5.5m)

Period of Project: Four years

The project will aim to:

- engage fuel poor and vulnerable customers to understand how they can benefit from energy efficiency and participate in demand-side response
- quantify the network service that these customers could provide
- understand the challenges and best approaches to engaging with these groups of customers.

The Low Carbon Networks Fund Expert Panel

- Dr Robin Bidwell CBE (Chair)
- Professor Nick Jenkins
- Sean Sutcliffe
- Sharon Darcy
- Professor David Newbery

The Electricity NIC Expert Panel

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- Professor Nick Jenkins
- Alan Bryce
- Sharon Darcy
- Professor David Newbery

The Gas NIC Expert Panel

- Miriam Greenwood OBE DL (Chair)
- Ron Chapman
- Sean Sutcliffe
- Sharon Darcy
- Professor David Newbery

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