



Making a positive difference
for energy consumers

Making Britain's energy networks Better

Our gas and electricity networks need to become smarter and more efficient. So Ofgem runs innovation competitions to fund projects that encourage new approaches which will help make the system smarter and save consumers money. The Low Carbon Networks (LCN) Fund and the Network Innovation Competitions (NICs) for electricity and gas help develop crucial knowledge and expertise to share across the industry. This year we will provide £46.4m of funding for eight projects.



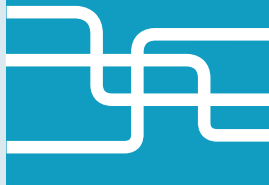
2014 projects

2014 is the final year of the LCN Fund and the second year of the NICs.

This year's projects cover an exciting range of areas across both distribution and transmission of gas and electricity. Each project tackles problems facing the networks now, or proactively for the future.

This year, some of the projects explore issues such as:

a new robotic device to inspect complex gas pipework



developing a new monitoring and control system and obtaining rapid response from new resources to manage system frequency



a new technique to reduce the amount of electricity lost at transformer substations



How we've judged each project

Each successful project must meet certain criteria to ensure it brings benefits to customers. A separate independent expert panel advises us for each competition. They help us decide which projects should be funded.

Our criteria are that a project must:

- Generate new knowledge that can be shared among all network operators
- Be cost effective and provide value for money to customers
- Accelerate the move to a low carbon energy sector and/or deliver environmental benefits, and potentially bring net financial benefits to customers now and in the future.

Each submission must also demonstrate that the project:

- Is innovative
- Is robust and ready to implement
- Involves appropriate partners and external funding
- Is relevant and timely.

Stimulating Innovation

The LCN Fund and the NICs are designed to stimulate innovation by network operators. This means the industry can better meet consumers' changing needs and **move to a low carbon economy** by:

- Connecting new low carbon sources of gas or electricity
- Meeting the needs of small-scale and intermittent generation
- Addressing an increase in electric vehicles, heat pumps, smart domestic appliances and other low carbon technologies
- Using new sources of data and trialling new practices to improve network performance
- Helping customers reduce their carbon footprint and cut bills by lowering their energy consumption
- Ensuring all customers can benefit from each project
- Sharing learning from the project through the [ENA 'Smarter Networks' Portal](#).

Read on for details on this year's projects.



LCN Fund Projects details:

Project:
Fault Level Active Response

Company Name:
Electricity North West

The Concept:
Investigate a range of technical, operational and commercial techniques for managing fault currents on the network.

The area: North West

Amount awarded:
£4.4m (total project cost £5.5m)

Period of Project:
3.75 years



The project will aim to:

- assess potential fault currents in near real time
- mitigate against the risk of fault currents damaging the network without the need for reinforcement
- unlock network capacity that is currently constrained by potential fault current levels.

LCN Fund Projects details:

Project:
Kent Area System Management

Company Name:
UK Power Networks

The Concept:
Investigate whether contingency analysis software can be used to safely run the high voltage network closer to its limits.

The area: Kent

Amount awarded:
£3.3m (total project cost £3.9m)

Period of Project:
3 years



The project will aim to:

- help DNOs to move away from conservative, 'worst case' scenario planning and operational assumptions
- manage network congestion better to avoid constraining renewable generators
- release network capacity and defer costly network reinforcements.

LCN Fund Projects details:

Project:
Low Energy Automated Networks

Company Name:
SSE Power Distribution

The Concept:
Investigate whether fixed transformer losses can be reduced by switching off one of a pair of transformers when the load on a substation is low.

The area: Southern England

Amount awarded:
£2.7m (total project cost £3.1m)

Period of Project:
4.25 years



The project will aim to:

- reduce losses to save customers money and reduce carbon emissions
- operate transformers in a novel way to reduce network losses without affecting the network or asset health
- identify how and where the new technique could be used cost-effectively.

LCN Fund Projects details:

Project:
Network Equilibrium

Company Name:
Western Power Distribution

The Concept:
Investigate ways for DNOs to control network voltages across wide areas of the network.

The area: South West

Amount awarded:
£11.5m (total project cost 13.1m)

Period of Project:
4.5 Years



The project will aim to:

- develop software to give DNOs more detailed information about voltage levels across the network
- manage network voltages actively in real time and across a wide area
- provide lower cost solutions to releasing capacity on the network.

Electricity NIC Projects details:

Project:
Enhanced Frequency Control Capability

Company Name:
National Grid Electricity Transmission

The Concept:
To develop and demonstrate tools which enhance National Grid's capability to control system frequency.

Amount awarded:
£6.9m (total project cost £9.3m)

Period of Project:
3 years



The project will aim to:

- develop and demonstrate new monitoring and controls for system frequency
- get accurate frequency data and initiate the required frequency response
- demonstrate the viability of obtaining rapid response from new sources such as solar PV or wind.

Electricity NIC Projects details:

Project:
Offshore Cable Repair Vessel and Universal Joint

Company Name:
TC Ormonde OFTO Ltd

The Concept:
To convert an existing telecom-cable repair vessel so that it can repair offshore power cables, and to manufacture and test a new universal cable jointing system.

Amount awarded:
£9m (total project cost £10.3m)

Period of Project:
3.5 years



The project will aim to:

- repair power cables more quickly and at reduced cost compared with existing methods of repair
- allow dissimilar sections of subsea cable to be jointed together.

Electricity NIC Projects details:

Project:
Modular Approach to Substation Construction

Company Name:
Scottish Hydro Electric Transmission

The Concept:
To develop and trial a modular approach to substation construction which integrates modular substation components with innovations in design and civil engineering.

Amount awarded:
£2.8m (total project cost £3.3m)

Period of Project:
4.5 years



The project will aim to:

- reduce the time and costs associated with delivering and commissioning a new substation
- reduce the environmental impact of substation construction through an increase in offsite construction.

Gas NIC Project details:

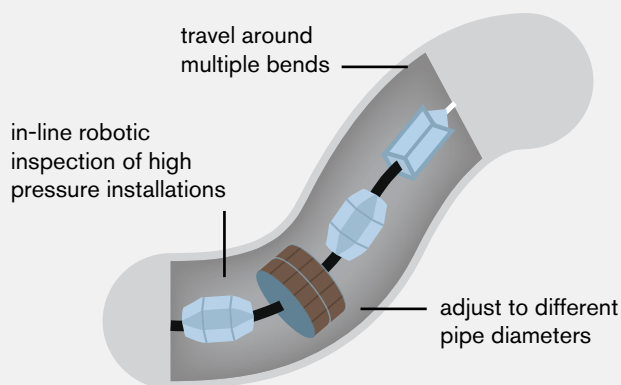
Project:
In Line Robotic Inspection of High Pressure Installations

Company Name:
National Grid Gas Transmission

The Concept:
To design and develop a robotic device to inspect complex below-ground pipework at high pressure above ground installations.

Amount awarded:
£5.7m (total project cost £6.3m)

Period of Project:
4 years



The project will aim to:

- extend the lifetime of the pipework
- reduce the number of unnecessary pipework excavations.

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

- Dr Robin Bidwell CBE (Chair)
- 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

Contact

Dora Guzeleva
Head of Networks Policy, Ofgem
Tel: 020 7901 1851
Email: dora.guzeleva@ofgem.gov.uk

London
9 Millbank
London SW1P 3GE
Tel: 020 7901 700

Glasgow
Cornerstone
107 West Regent Street
Glasgow G2 2BA
Tel: 0141 331 2678

Cardiff
1 Caspian Point
Caspian Way
Cardiff Bay
Cardiff CF10 4DQ
Tel: 029 2044 4042

www.ofgem.gov.uk