



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. Ofgem runs innovation competitions to fund projects that encourage new approaches that will help make the system smarter and save customers money. 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 **£44.6 million** of funding for **six** projects which, when combined with the companies' contributions and external funding, will see a total of **£53.9 million** being invested in innovation.



2016 NIC projects

2016 is the fourth year we have run 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 in the future.

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

Investigating how local energy resources can be deployed in a coordinated way by electricity distribution and transmission operators.



Testing a new way of providing services (traditionally provided by fossil-fuelled power stations) to help balance the electricity network.



Demonstrating that natural gas containing higher hydrogen levels can be distributed and used safely on a private gas network.



What is the NIC?

The NIC is open to applications from GB distribution and transmission networks, including independent network companies, offshore transmission owners, and the national system operator. Network companies submit and deliver projects in partnership with the wider energy industry, such as energy suppliers, universities or technology providers.

How we've judged each project

Each successful project must meet specific criteria to ensure it brings benefits to network customers. Two expert panels (one for electricity and one for gas) advise us for each of the competitions. 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 network customers.
- Accelerate the move to a low carbon energy sector and/or deliver environmental benefits, and potentially bring net financial benefits to network 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 NICs are designed to stimulate innovation by network operators. This means the industry can better meet network customers' 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.
- Using new sources of data and trialling new practices to improve network performance.
- Helping network consumers reduce their carbon footprint and cut bills by lowering their energy consumption.
- Addressing an increase in electric vehicles, heat pumps, smart domestic appliances and other low carbon technologies.
- Sharing learning from the project through the [Energy Network Association's 'Smarter Networks' Portal](#).
- Ensuring that network customers can benefit from each project.

Alongside this year's NICs, we will shortly be publishing a consultation as part of our Innovation Review. We will be seeking views on proposed changes to the NIC governance arrangements.

Read on for details of this year's projects.



Electricity NIC project

Project:
OpenLV

Company name:
Western Power Distribution (WPD)

The concept:
To develop a new software platform which uses cloud technology to enhance visibility of residential-level substations.

NIC funding awarded:
£4.9 million

**Additional company contribution/
external funding:**
£0.5 million from WPD with additional funding of £0.5 million from project partners.

Period of project:
3 years

Electricity NIC project

Project:
Transmission & Distribution Interface 2.0 (TDI 2.0)

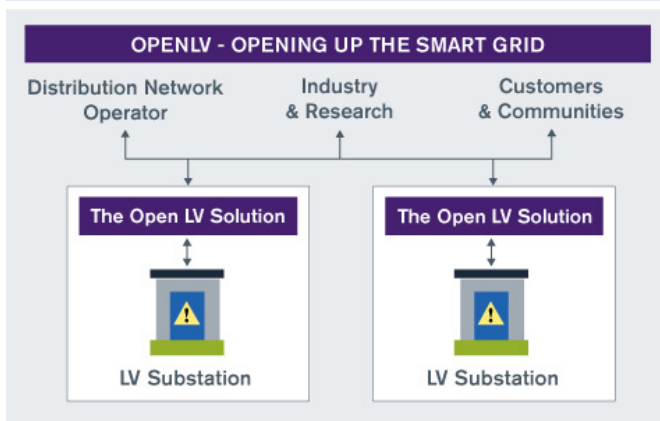
Company name:
National Grid Electricity Transmission plc (NGET)

The concept:
To test technical and commercial solutions to resolve constraints on the transmission network.

NIC funding awarded:
£8.0 million

**Additional company contribution/
external funding:**
£1.5 million from NGET and UKPN combined.

Period of project:
3 years



The project will aim to:

- Increase the capacity of local distribution networks.
- Test the value of providing network data to communities who wish to have more control over their energy usage.
- Enable third parties to develop apps to improve network performance.



The project will aim to:

- Demonstrate how local energy resources can be deployed in a coordinated way by distribution and transmission operators.
- Release additional capacity for renewable generators.
- Demonstrate the contractual arrangements required to establish new industry services.

Electricity NIC project

Project:
Power Electronic Fault Limiting Circuit Breaker (PowerFuL-CB)

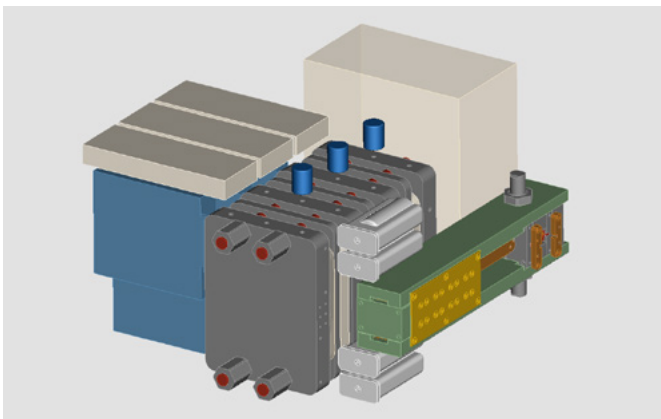
Company name:
UK Power Networks (UKPN)

The concept:
To develop two new types of circuit breaker on the GB network.

NIC funding awarded:
£4.6 million

**Additional company contribution/
external funding:**
£0.6 million from UKPN with additional funding of £0.9 million from project partners.

Period of project:
4.5 years



The project will aim to:

- Demonstrate innovative, smaller circuit breakers.
- Enable more distributed generation connections in congested urban areas.
- Deliver significant financial savings if deployed across the GB network.

Electricity NIC project

Project:
Phoenix

Company name:
SP Transmission plc (SPT)

The concept:
Testing a new way of providing services (traditionally provided by fossil-fuelled power stations) to help balance the electricity network.

NIC funding awarded:
£15.6 million

**Additional company contribution/
external funding:**
£1.8 million from SPT with additional funding of £2.3 million from project partners.

Period of project:
4 years



The project will aim to:

- Test a new combination of technologies to help balance the transmission network.
- Release additional capacity for renewable generation and interconnectors on the network.
- Demonstrate the commercial model behind these services.

Gas NIC project

Project:
HyDeploy

Company name:
National Grid Gas Distribution (NGGD)

The concept:
To perform the first practical deployment of hydrogen onto a live GB gas distribution network since the 1970s following the move to North Sea gas.

NIC funding awarded:
£6.8 million

**Additional company contribution/
external funding:**
£0.8 million from NGGD

Period of project:
3 years



The project will aim to:

- Demonstrate that natural gas containing levels of hydrogen beyond those permitted by the current safety standards can be distributed and used safely on a private gas network.
- Develop practical experience in hydrogen mixing and injection.
- Develop best practice for subsequent testing and roll-out of hydrogen injection onto the wider network.
- Provide evidence to help address regulatory barriers, providing a pathway to wider deployment.

Gas NIC project

Project:
Future Billing Methodology

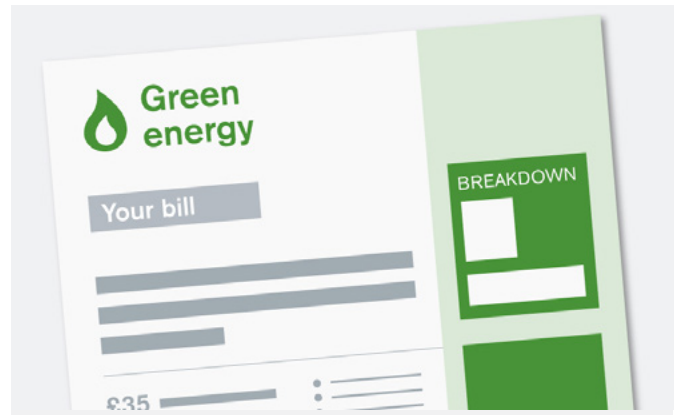
Company name:
National Grid Gas Distribution (NGGD)

The concept:
To explore options for a fair and equitable billing methodology for the gas industry which will be fit-for-purpose in a lower-carbon future.

NIC funding awarded:
£4.8 million*

**Additional company contribution/
external funding:**
£0.5 million from NGGD

Period of project:
3 years



The project will aim to:

- Help open up the gas network to greater low carbon and other unconventional gas sources, by reducing the need for expensive and carbon intensive processing.
- Recommend a revised billing methodology which will minimise cross-subsidy between consumers where gases of differing qualities are injected into the network.
- Support the roll-out of other low carbon gas innovation projects.

*While we have awarded this project funding, it is subject to NGGD accepting an additional condition that we have imposed to ensure it delivers good value to gas customers. NGGD may choose not to progress this project on these terms. We are working with them and a decision is expected by the end 2016.

The Electricity NIC Expert Panel

- Dr Robin Bidwell CBE (Chair)
- Jo Armstrong
- Alan Bryce
- Sharon Darcy
- Prof. Nicholas Jenkins

The Gas NIC Expert Panel

- Miriam Greenwood OBE DL (Chair)
- Ron Chapman
- Trisha McAuley OBE
- Prof. David Newbery
- Sean Sutcliffe

Contact

Tom Mackenzie

Team: Networks

Email: networks.innovation@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