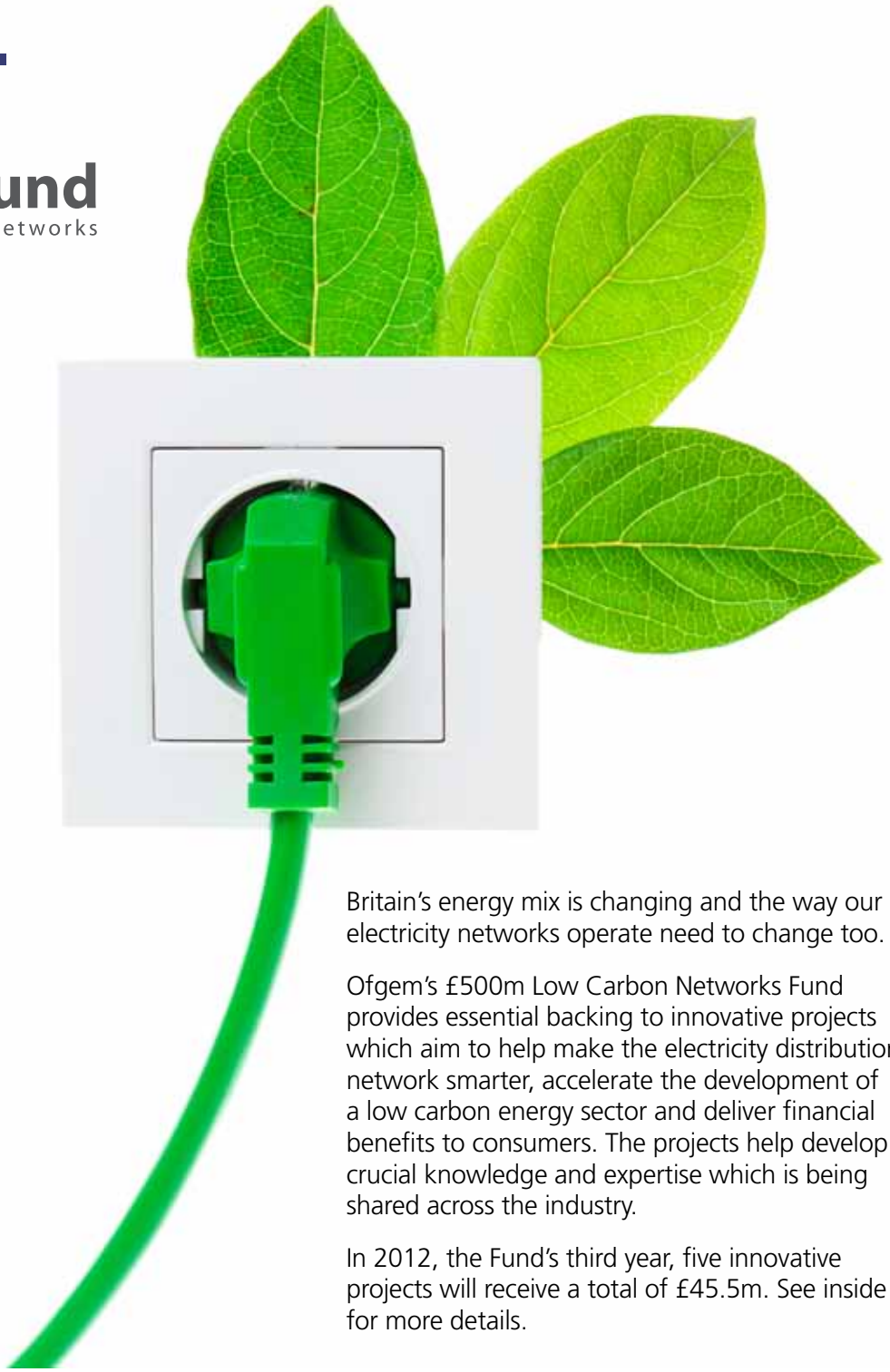
ofgem Promoting choice and value for all gas and electricity customers

Creating Britain's low carbon future. **Today.**

LCN Fund
Low Carbon Networks



Britain's energy mix is changing and the way our electricity networks operate need to change too.

Ofgem's £500m Low Carbon Networks Fund provides essential backing to innovative projects which aim to help make the electricity distribution network smarter, accelerate the development of a low carbon energy sector and deliver financial benefits to consumers. The projects help develop crucial knowledge and expertise which is being shared across the industry.

In 2012, the Fund's third year, five innovative projects will receive a total of £45.5m. See inside for more details.

LCN Fund
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The LCN Fund began in 2010 and will run until 2015. It is designed to stimulate innovation in the electricity distribution network by providing partial financing for ground-breaking projects.

These will help the industry understand how to meet the changing needs of customers. It will also make sure the networks are prepared for, and facilitate, the transition to a low-carbon economy.

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

- Efficiently connecting renewable generation.
- 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 smart meter data to improve network performance and reduce costs.
- Incentivising customers to reduce their carbon footprint and cut bills, by managing their energy demand.

The LCN Fund in Numbers

Up to £500 million available in total, over the five year period.

The First Tier, up to £16 million a year, is spread across all distribution network operators (DNOs) and can be spent against set criteria.

The Second Tier, up to £64 million a year, can be provided to projects that win an annual competition.

A discretionary reward totalling up to £100 million over the five year period, can be awarded by Ofgem for successful project completion and to reward exceptional projects.

2012 Second Tier funds:

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

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

- accelerate the development of a low carbon energy sector & have the potential to deliver net financial benefits to future and/or existing customers
- impact on the operation of the distribution network
- provide value for money to distribution customers, and generate new knowledge that can be shared amongst all network operators.

Bidders 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, and
- is relevant and timely.

This year's projects cover diverse areas and there are new partnerships between network companies and other companies to help gather expertise essential to delivering high quality projects.

All the successful projects demonstrated a relevance to the challenges facing the industry 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:

- how to meet the challenges facing networks from increasing use of low carbon technologies
- how to better use the capacity of existing networks
- how results can lead to a more efficient approach to future investment.

Low-carbon networks: the future

Network operators face a number of challenges as they look to facilitate the transition to a low carbon economy. They will increasingly have to deal with two way flows on the network from photo voltaic solar panels in homes and other forms of distributed generation. The decarbonisation of heat and transport may place far greater demands on the electricity network and the roll out of smart meters will encourage customers to change how they use energy.

Ofgem has already introduced a new regulatory framework for the energy network sector: RIIO (Revenue= Incentives+Innovation+Outputs). The aim is to ensure that networks not only respond quickly and efficiently to changing customer demands but also work with those customers to help anticipate such changes.

The knowledge accumulated from the trials funded by the LCN Fund will help network companies build up their understanding of how and where future investment will most be needed.

The LCN Fund is only open to projects in the electricity distribution sector. However, the RIIO framework is bringing a similar approach to innovation for the gas distribution and electricity and gas transmission sectors.

The Winning Projects

CLASS (Customer Load Active System Services)

ARC (Accelerating Renewable Connections)

Innovation Squared

Smarter Network Storage

Flexgrid

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CLASS (Customer Load Active System Services)

The company: Electricity North West

The concept: Investigating how reducing voltage on the distribution network can reduce peak demand and support the wider electricity system.

The area: North West England

Amount awarded: £7.2 m (total project cost £9m)

Period of project: Two and a half years

This project will aim to:

- reduce peak demands, potentially deferring the need for or avoiding costly reinforcement of the network
- explore the relationship between voltage and demand
- investigate whether voltage control can reduce power demands
- investigate how voltage control can be used to support the wider system.

ARC (Accelerating Renewable Connections)

The company: Scottish Power Distribution

The concept: Using a holistic approach to the connection process for distributed generation to tackle barriers to timely connection.

The area: Scottish borders

Amount awarded: £7.4m (total project cost £8.8m)

Period of project: Four years

The project will aim to:

- trial new technical and commercial arrangements to actively manage the network
- investigate and demonstrate the role communities can play in the connection process
- provide more information to allow customers to make choices on their connection needs.

Innovation Squared

The company: Southern Electric Power Distribution (& EA Technology as lead partner)

The concept: Trialling a technology that will allow a cluster of electric vehicles to re-charge without stressing the distribution system.

The area: Across GB

Amount awarded: £4.2m (total project cost £9.7m)

Period of project: Three years

The project will aim to:

- trial an 'intelligent socket' charger that is controlled remotely to manage demand on the system
- examine the willingness of electric vehicle customers to adopt intermittent charging
- gather learning on the effects of clusters of electric vehicles on the distribution system.

Smarter Network Storage

The company: UK Power Networks

The concept: Investigating the optimisation of a range of battery services with the aim of improving the economics of storage.

The area: Bedfordshire

Amount awarded: £13.2m (total project cost £18.7m)

Period of project: Four years

The project will aim to:

- develop new operational procedures for incorporating storage to help manage the system
- develop a control system to optimise the use of batteries for multiple purposes
- understand the commercial and regulatory arrangements to use batteries for multiple purposes.

Flexgrid

The company: Western Power Distribution

The key concept: Investigating, measuring, monitoring and mitigating Fault Level, a technical issue that can limit the connection of distributed generation. If successful this could allow for cheaper and quicker connections.

The area: Birmingham

Amount awarded: £13.5m (total project cost £17.1m)

Period of project: Four years and three months

The project will aim to:

- develop a more accurate method for estimating the impact of distributed generation on the network
- record the impacts of distributed generation on the network in real-time
- test new technologies to manage the Fault Level, to reduce the cost and time necessary to connect distributed generation.

The Expert Panel

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

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