

Creating efficient distribution networks

SMART STREET

Electricity North West is leading the way in developing smart solutions to meet the UK's future energy challenges. The company's latest project looks at innovative ways of maximising the use of the existing electricity network by adapting established technology and leveraging learning from previous projects.

In November 2013, Electricity North West, the company who operates the electricity network in the North West of England, was granted funding from Ofgem's Low Carbon Networks (LCN) Fund for the £11.5 million 'Smart Street' project. Smart Street builds on the learning from the company's two previous LCN Fund projects – Capacity to Customers and CLASS.

By combining innovative technology with existing assets, Smart Street aims to make networks and customers' appliances perform more efficiently and make it easier to adopt low carbon technologies (solar panels, electric vehicles and heat pumps) onto the electricity network.

This innovative approach will keep costs down for customers, reduce carbon emissions and help get the most from the existing network.

Background

It is estimated that the cost of upgrading the UK electricity network by building more infrastructure to meet future demand could be as much as £1.8 billion by 2025 in the North West alone, and £15 billion across Great Britain. That's the equivalent of almost £600 for every household. To minimise potential cost, disruption and carbon emissions, distribution network operators like Electricity North West need to develop smarter and more flexible ways of managing electricity networks.

What will Smart Street deliver?

Smart Street will trial the use of innovative voltage control techniques to optimise the voltage on the network and minimise the impact of low carbon technologies, while maintaining voltages within statutory limits.

New controllable switching devices, called the WEEZAP and LYNX, developed in collaboration with Kelvatek, will be integrated into the network management system. This will be the first demonstration in Great Britain of a fully centralised low voltage network management and automation system.

The project involves a series of trials to test the technology on six primary substations and 40 related distribution substations, representing around 45,000 customers in Wigton, Egremont, Manchester and Wigan.

SMART STREET will deliver:

- Increased network capacity
- Easier connection of low carbon technologies
- Reduced reinforcement costs
- Improved carbon efficiency
- Reduced overall energy consumption
- Lower bills for customers
- Shorter interruptions to customers' supplies
- Improved service to customer



Bringing energy to your door

The new equipment will be installed and the system configured between late 2014 and mid 2015, with live trials due to begin in late 2015. The trials will be carried out on a one-week-on and one-week-off basis until the latter part of 2017.

Understanding whether customers are affected by the trials is crucial to the viability of the solution. The company will engage with customers in the trial areas to let them know about the trials and will use an 'engaged customer panel' to help decide the best way to communicate information about the project. A series of focus groups will be held during the trials to collect qualitative information from customers. The aim of the research is to test if customers observe any changes in their electricity supply.

Smart Street partners

Throughout the Smart Street project Electricity North West will work with a number of partners and key suppliers who are leading experts in their fields, either in research, technology or customer engagement. The partners working on the project are Kelvatek, Siemens and Impact Research. Key suppliers include TNEI, the University of Manchester, Queen's University Belfast and the Tyndall Centre.

The project will run from January 2014 until December 2017. Find out more at: www.enwl.co.uk/thefuture