



Low Carbon Network Fund Project Progress Report June 2011

LV Network Templates for a Low-carbon Future

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1. Executive summary

1.1. Project Background

The Network Templates LCNF Tier 2 project is designed to provide data on the low voltage (LV) distribution network. Currently, the final stage of monitoring is on the outgoing 11kV feeders in a primary substation, where current and voltage is measured. The real-time loading of the distribution substations, located along the 11kV feeders, is not recorded or visible remotely, and can only be obtained by visiting site to read a maximum demand indicator, which has variable and poor accuracy across the loading range. This project will provide remote monitoring of current and voltage at 1035 distribution substations, through the addition of meters and communication infrastructure. In addition, voltage monitors will be installed in houses at the end of low voltage feeders, to allow voltage profiles to be developed.

Collecting this data now is important is due to the forecast increases in loading and voltage stresses on the network arising from expansion in the numbers of low-carbon equipment to be connected into the low voltage network, including photo-voltaic generation, heat pumps and electric vehicles. Better understanding of the time of day loading and voltage “headroom” currently available on different types of LV network and customer is crucial to planning the network of the future. This project will develop statistically sound network templates for different types of LV network, comparing traditional networks with those including low-carbon technologies.

1.2. Project Progress Highlights

During the first reporting period (Dec 2010 – May 2011) the Network Templates project has progressed through the mobilisation stage and into construction, with all key milestones remaining on target. The following is a summary of the key activities completed during the first reporting period.

1.2.1. Customer communications

The Customer Communication Plan and Data Privacy Strategy were approved by Ofgem at the end of March 2011, and WPD’s first communication with customers was on 4 April 2011, to schedule the first customer shutdowns to install current transformers (CTs).

1.2.2. Design and construction

Installations of current transformers (CTs) began at the end of April 2011. Of the 1,035

substations included in this project, there are 773 ground-mounted substations and 262 pole-mounted substations. As of the end of May, CTs had been installed in 76 of the 773 ground-mounted substations, some 10% of the total. Other substations are being completed on a daily basis, with the pole-mounted substation works starting in June 2011. The estimated completion date for all CT installations is the end of October 2011.

1.2.3. Communications infrastructure

Following an intensive period of detailed design works, GE and WPD have signed a contract for GE to provide the communications infrastructure for this project. The provision of a number of items for a proof of concept will be received in August, with delivery of the main items starting in September 2011 and continuing through to January 2012. Site surveys for the radio infrastructure will begin at the end of June 2011.

1.2.4. Governance

A Project Manager has been appointed to oversee the development and delivery of the project. Meetings are held on a regular basis with senior management responsible for the governance of the project, to assess progress and review risks, issues and decision points.

1.2.5. Project partner and stakeholder engagement

There has been regular communication with the key project partners and stakeholders associated with this project, including GE, the University of Bath, npower, the Welsh Government, energy suppliers and the local Police forces. Contracts will be signed in July with the University of Bath and npower.