Case Study (Ashton Hayes):Layout 1 22/10/08 12:48 Page 1

CARBON CO_2 NNECTIONS

case study

Ashton Hayes Microgrid feasibility study

Model for the installation and operation of a rural microgrid on the existing power distribution network using Ashton Hayes, Cheshire as a test-bed.

Project Summary

The University of Chester and EA Technology, in partnership with the community of Ashton Hayes, Cheshire, will develop a feasibility model for a rural microgrid.

A microgrid would use small-scale renewable energy generated locally and connected to the main distribution network. The community will develop a local energy economy and match demand and generation profiles.

Partnership

- University of Chester, working with Ashton Hayes Parish Council since 2006 as part of the 'Going Carbon Neutral' project.
- EA Technology, asset management company with 40 years of experience.

Aims

To develop a technical and economic specification for a rural microgrid in the village of Ashton Hayes that will be acceptable to the community. The model will be developed for the test-bed of Ashton Hayes and will produce a methodology that has the potential for application in communities across the country.

The partners will find the appropriate business and economic models for the operation of the microgrid including the development of an Energy Services Company (ESCO) and the villagers will consider all options for future implementation of a microgrid in their village.

Inspiration

The project uses the University of Chester's expertise in community carbon reduction programmes and social and environmental survey techniques combined with EA Technology's technical expertise in power generation, supply and metering. Together they will investigate an innovative approach to the efficient use and control of small-scale generation that enables communities to take control of their energy use and to reduce their carbon footprint, investigating the best technical and economic models to select the most appropriate mix of renewable generation for the microgrid.

The award-winning Going Carbon Neutral Project in Ashton Hayes, Cheshire, is recognised as a standard for initiatives elsewhere and a microgrid model developed for the village will have a ready route for implementation in communities across the country.

Innovation

To date, no microgrid has been implemented within an existing network in the UK. Other microgrid projects use private wires rather than the public electricity network and none have been set in a rural community.

This project approaches a new way for communities to maximise the benefit they obtain from renewable energy by considering ownership models that empower the community itself. An innovative aspect of this project is its active engagement of the local community and the combination of expertise that it brings.

In the future, as more small-scale renewable generation is connected, its efficient use and control is likely to grow in importance. Since the possible economic frameworks appropriate for the UK have not yet been investigated, this project will include liaison with an external electricity supply company and could lead to the establishment of an internal Energy Services Company (ESCO). The ESCO would manage the local energy economy within the microgrid and the purchase and sale of energy from and to the electricity supply company.

Future Implementation

Following the review of the demand profiles, the environmental and technical feasibility studies, and having considered the ownership and management models developed, the Ashton Hayes Community will decide if it is to be the first rural community to install a rural microgrid.

University of East Anglia

For further information please contact:

Matt Dolan
Marketing Manager
01603 591358

email:
m.dolan@uea.ac.uk

Carbon Connections is HEIF-funded investment project utilising £3 million for carbon reduction activities. Based at the UEA, Carbon Connections supports innovative projects in carbon reduction using a partnership model. The aim is to facilitate knowledge transfer between universities and research laboratories and the business community to speed commercial development of carbon-saving projects, whether technological or behavioural in focus.

carbon reduction innovation knowledge transfer sustainability **www.carbon-connections.org**