

case study

Visible Energy

Interactive monitoring of energy usage

Project Summary

Examining the changes in energy behaviour patterns of households when provided with immediate visual and quantitative feedback of energy usage.

Partnership

- University of East Anglia, 5** rated School of Environmental Sciences
- SYS Consulting Ltd. (SYSCo), ICT experts specialising in data mining and pattern recognition
- Green Energy Options (GEO), who developed the Home Energy Hub system

Aims

To create a greater depth of understanding of behavioural analysis that will complement current energy monitoring and smart metering trials. An expected reduced carbon footprint for those households recruited. A feasibility report using the Home Energy Hub's data to recognise types of appliance in use.

Inspiration

Energy usage in buildings is invisible and very easy to ignore. Enabling people to see their energy usage is a primary tool in helping them become more energy efficient. Monitoring customer interaction with real-time energy will facilitate a long-term shift towards more sustainable energy use.

Innovation

Smart energy monitors provide consumers with easily accessible information on gross electricity consumption on a simple portable display. Green Energy Options (GEO) has developed the Home Energy Hub, whose key design concept is to engage people by making the product attractive, appealing, and eye-catching. The information it portrays is striking, fascinating and captivating and will hold people's attention. The full system can monitor up to 100 sensors per household and includes a colour touch screen to be used in the main living area. The Home Energy Hub also measures oil or gas boiler usage and is web enabled so that information can be downloaded to GEO.

The project itself is innovative because for the first time it applies behavioural and change management to the implementation of technology in meeting policy objectives.

Development

210 homes will trial the hub, 140 of these with feedback display. The project will monitor whether providing people with more detailed information generates greater and more lasting changes. The project also addresses intelligent metering because an added feature of the equipment is a feedback/control element which has the ability to automatically switch appliances off based on 'normal' usage.

The expected outcomes are direct savings by changing energy use behaviours and reducing energy wastage. Potential carbon savings are between 5% and 20% from changing behaviours and a similar number for reducing wastage.

If the project achieves 5% market penetration in 5 years (approximately 1 million homes) and assumes a 20% reduction per home at an average of 5 tonnes CO₂ emissions per home, this equates to 1m tonnes CO₂. The Home Energy Hub calculates the savings, which will be collected over the internet and used to estimate the total savings.

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.

