

CASE STUDY: ENERGY EFFICIENCY

Energy efficiency: a whole village approach

Energy efficiency can be tackled on a village-scale, as demonstrated by North Kilworth in Leicestershire. Residents have established a Community Interest Company (CIC) which is taking forward an array of projects to reduce the village's carbon footprint and its reliance on non-renewable energy.

A key way in which our towns and villages can become more sustainable is by addressing energy efficiency. North Kilworth, in Leicestershire, is one village that is dedicated to achieving this and it is taking forward several projects to realise this aim.

It began by establishing a Community Interest Company – Village Power CIC – that is dedicated to improving the village, ensuring it has access to renewable energy and establishing future funding streams that will provide a sustainable local economy. Village Power CIC is a limited company but it is run by a group of local volunteer residents and exists to provide community benefits rather than private profit.

“North Kilworth is a rural community that is highly dependent on fossil fuel energy. The LEAF funding helped residents consider energy efficiency, the measures necessary to reduce energy consumption, and carbon emissions, to ultimately save money.”

Stuart Dainton, Village Power CIC

Village Power CIC was successful in bidding for £36,000 of Government funding from the Local Energy Assessment Fund (LEAF). This fund was set up to support communities across England and Wales which are seeking to play an active role in developing a low carbon society – where energy supply is both secure and affordable. LEAF has provided funding to

Energy surveys

Village CIC worked with Elmhurst Energy on this project to rate the energy efficiency of the entire village, with funding from the Government's Local Energy Assessment Fund.

Energy surveys were carried out on 30 properties in the village in 2009 so the first step was to analyse these surveys to explore the recommendations in terms of potential savings in CO2 emissions and running costs. All properties in the original study were reassessed and questions asked in order to understand residents' motivations for either undertaking the recommended actions or choosing not to. Where recommended actions have been taken, the impact on emissions and costs have been quantified and further details of the results can be found at www.villagepowercic.co.uk.

The original participants and all residents were offered the opportunity to have a new energy survey of their home with the provision of an Energy Performance Certificate to help gain a picture of energy efficiency and carbon emissions across the village.

The project culminated in a report that outlined what has already been done, savings that have been made, and the improvements necessary for the future reduction of energy and carbon emissions. It included the outstanding potential for residents, reasons why people did or didn't implement recommendations and identified the options for funding future improvements through the Government's 'Green Deal' programme.



Residents of North Kilworth attend a Village Power CIC meeting to hear about plans for renewable energy in the village

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community groups to help them understand energy efficiency and the actions that can be taken to reduce energy use.

As a result of LEAF and other funding, North Kilworth has undertaken several partnership projects which have helped establish a village energy 'map'. These projects include: energy surveys, the provision of energy monitors for residents, a renewable energy report and research into voltage.

By securing community grant funding and working with a range of expert organisations, North Kilworth is showing how it is possible for residents to do more to address climate change than just remembering to turn their lights off. It is hoped that other towns and villages throughout the country will be inspired to take a similar approach.

For further information:

<http://villagepowercic.co.uk>

www.greencommunitiescc.org.uk

Voltage optimisation

Electrical equipment is usually designed to operate most efficiently at 220V, whereas the average UK voltage is 242V. Voltage optimisation (VO) equipment is now available for domestic use that can lower the voltage supply and therefore cut domestic power consumption.

The benefits of VO for the residential market are potentially great but further work needs to be done to accurately measure the savings and produce a model and unit size that will achieve the best return on investment. Hence Village Power CIC has set up a project to establish the commercial and environmental case for the community, in partnership with Sollatek.

A survey of three houses was undertaken to establish consumption and voltage data and generate a load profile. Following the survey, a 100 Amp single phase Voltage Optimiser was installed in each of the three houses, armed with a monitor to measure savings in real time. It is anticipated that the data from this survey will be sufficient to suggest a VO solution for village residents to consider that will deliver the maximum savings while providing a payback of less than four years.



Energy monitors

Sixty properties in the village were given free Wattson monitors (paid for by the Local Energy Assessment Fund) to highlight energy use and hopefully inspire homeowners to become more energy efficient. These simple but engaging devices, show both electricity generated and used in real time in the home.

When connected to your electricity supply, the Wattson receiver will display a running total of the energy being used, in either watts or pounds per year. An immediate change in reading will be registered when an electrical device is turned on or off. It also uses lighting to communicate readings – when the lights are blue, energy consumption is low; when they are red, it's high. So it is simple for both adults and children to use.

Using information provided by residents using the monitors, Village Power CIC will monitor any energy, cost and carbon reductions that have been stimulated as a result. devices. This data will inform what additional projects the CIC will undertake to encourage future domestic energy efficiency.



Energy production report

Village Power CIC commissioned WYG to determine the renewable energy production potential within the village, focusing on anaerobic digestion (AD) – a treatment that composts food and other biodegradable waste in the absence of oxygen, producing a biogas that can be used to generate electricity and heat.

The report identifies an option for an AD plant and the potential energy benefits. Research has shown that at least 0.36 per cent of UK electricity generation could be generated by AD of source-separated household waste, such as food waste and even more could be generated with the inclusion of non-household waste streams, such as food waste from restaurants and retailers.