



CLASP

Climate Change
Local Area
Support
Programme

Community Engagement Toolkit

Case Studies

Showcasing local examples of how other communities have delivered their own renewable energy projects.

www.clasp-nw.info

July 2011

Case Studies

There are five different case studies, one per North West sub-region:

■ **Cheshire and Warrington:**

Sustainable Blacon – energy monitoring equipment and affordable renewable technologies in an Eco House.

■ **Cumbria:**

Thirlmere Recreation Hall – biomass heating system for a community hall off the gas network.

■ **Greater Manchester:**

New Charter Housing Trust – district heating for a social housing block of flats.

■ **Lancashire:**

Barley Village Hall – combination of heat pumps and solar PV in a village hall.

■ **Merseyside:**

Larkins Farm – wind turbines to provide electricity for community buildings.

The case studies showcase different types of community undergoing different renewable energy projects. The case studies have been selected based on the technologies installed and the approach taken by each group to complete the projects. It is highly recommended that all the case studies are considered by your community group and contact made where necessary.

For more information on how to undertake the steps necessary to deliver a community renewable energy project please see the accompanying documents produced as part of the CLASP Community Engagement Toolkit.

■ **'How to Use' Guide**

■ **Factsheets**

■ Case Studies

■ **Checklist**

■ **Powerpoint Presentation** (available on the CLASP website)

■ **Literature Library** (available on the CLASP website)

Making the best use of affordable technologies to reduce energy bills

Find out how a social enterprise in Blacon has reduced their energy bills and carbon emissions by using affordable energy efficiency and renewable energy technologies.

The owners

Blacon is a large suburb of Chester, and is home to over 16,000 residents (with over half living in social housing and receiving some form of benefit). For many residents, soaring fuel bills have become a major concern.



Sustainable Blacon is part of Blacon Community Trust, a social enterprise that works to improve the area. They have been working with the community for several years to understand the different priorities of residents such as finding ways to save money, making Blacon a better place to live and reducing the impact on the environment.

The motivation for change

Sustainable Blacon identified renewable energy technologies as a potential way to help:

- **Reduce fuel poverty** - using renewable technologies (along with basic energy efficiency measures like insulation and behavioural change).
- **Address community division** - over a cross section of residents, from elder people to young families, and bringing together two separated areas (Camp and Lodge).
- **Reduce carbon emissions by 20%** - using renewable energy technologies such as solar thermal hot water systems and adopting energy saving behaviours.
- **Empower people** - by allowing the community to take ownership of the project, leading to increased resident participation and sense of community well being.

The renewable energy solution

Sustainable Blacon was one of the 22 communities across the UK to be awarded funding through the Government's Low Carbon Communities Challenge. This funding, alongside further financial support from Cheshire West and Chester Council, enabled Sustainable Blacon to kick start a project covering:

- **2 Eco-Houses** to demonstrate different technologies first hand to residents. These include different energy solutions to help residents understand options available to help them save money on their energy bills, including renewable energy technologies such as a solar thermal hot water system.



- **100 smart energy systems** to help residents identify ways to reduce their energy use. Some homes were fitted with energy management and monitoring technology to measure the energy use for a year. The residents are also taking part in a 12 month 'Energy Management System' research programme to cut their energy bills by one fifth by adopting energy saving behaviours.

Community involvement and volunteering has played a major role in the success of Sustainable Blacon. The staff at Sustainable Blacon worked with a team of volunteers and selected a number of local residents to help shape the Low Carbon Communities Challenge funding bid. The bid was strengthened by a previous partnership with the Local Authority to promote loft and cavity wall insulation in the area. Sustainable Blacon teamed up with a local High School and volunteers to complete several thermal surveys on different buildings.

Key issues

- **Affordability** - This was a key principle for any technology selected. The solar thermal hot water systems installed were recommended by the appointed building contractor after consulting several installers. The technology and supplier were selected based on high quality service records, design and affordability.
- **Lack of expertise** - there was limited 'in-house' expertise. This was overcome by setting up partnerships with other organisations such as the University of Chester and Prescient Associates, Cheshire West and Chester Council and the Energy Saving Trust.
- **Community commitment** - Blacon has a very active community and in addition to the many other households joining the Energy Management Programme, Sustainable Blacon encouraged representatives from some of its many groups to take part. As the team expected, a third of the households dropped out of the year long programme. The University of Chester are contacting those who withdrew to see what lessons can be learnt for future community-based approaches). The team hope to support a large number of "graduates" in their continuing efforts to spread the knowledge they have gained to influence behaviour supported by the use of the Eco Houses.

Frequently asked questions

A number of key questions have been raised:

Questions from community members:

- How much is this going to cost me?
- Does this really work or is this just another gadget that costs more than it saves?
- How can we change and educate our families to save money in the long run?

Questions from the social landlords:

- If we wanted to install renewable energy technologies, who will receive the Government incentives: the landlord or the resident? How have other communities taken advantage things like 'free solar photovoltaic' schemes?

Questions from Sustainable Blacon:

- Where is it safe to install technologies which are visible? - Solar panels could be vandalised. Community engagement brings greater ownership and security for energy saving and renewable energy technology installations. Sustainable Blacon hopes that the high profile of the project, the explanations and the community-focus will deter any attempts to damage the installations.
- How can we continue to engage people so that they remain involved in this type of initiatives? The Eco Houses provide a focus for engagement in this. Adults and children, individually or from local schools, appreciate the visual and tangible messages and practical ways to get involved.

The results so far

The results to show whether residents have saved 20% off their fuel bills will be published in summer 2011. These results will be used to help engage with the rest of the community who are interested and whose main concern is reducing their energy bills.

Participants of the energy monitoring groups have benefited from interacting with other members of the community, sharing their expertise and experience in an open, interactive manner, reinforcing environmentally-friendly actions and bringing the community closer together.

Communicating the results

All residents participating in the project have access to a community events programme where they can find out how to save energy and learn from others.

Also, Sustainable Blacon has focused on engaging with the two separate areas of Blacon, by siting one Eco House in each area.



The project is still ongoing but Sustainable Blacon is already receiving some very positive feedback:

- Local Councillor Reggie Jones has reported considerable interest from residents in the development of the Eco House and the solar thermal panels which will obviously draw people into the property where they can learn more.
- Ged Edwards, Chief Executive of Sustainable Blacon, commented that focus on energy has potential to attract people into civic life. The University are researching the social capital benefits the programme has brought. In addition to the engagement of households, the programme had benefited from contributions from 101 volunteers this year. For local people, the interest has been on saving money and on visibly seeing what they can do, rather than on carbon.

"I've saved hundreds of pounds on my energy bill since joining Sustainable Blacon's energy management programme, and I couldn't be more impressed!"

Shirley Joinson

Key contacts and further information

For more information contact Ged Edwards on ged@sustainableblacon.org.uk. or visit www.sustainableblacon.org.uk

Biomass heating providing an environmentally friendly solution for a community hall

Find out how a community in Cumbria has installed a biomass boiler to provide a more user friendly, environmentally responsible and cost effective way to heat their recreation hall.

The motivators for the community

Thirlmere Recreation Hall is in the centre of a rural parish in the middle of the Lake District National Park (LDNP). The hall is used for community meetings and other activities. Originally a Mission Church at Haweswater, the building became redundant when work ended on the reservoir and it was donated to the community.

As the building has a cast iron structure, it used to be very cold and take several hours to warm up. To heat the building, which is not connected to the gas grid, the community used electric heaters. This meant that members had to arrive two hours before any meetings or events to switch on the heaters to ensure it was warm enough for members.

The community has so far invested significant time and effort into making the building more comfortable and user friendly, including refurbishment and insulation. They were therefore keen to find an alternative heating system which was cheaper to run and more environmentally friendly than electric heaters.

The key motivators for the community were:

- **Cost of fuel** - electricity bills were very high as electricity is a very expensive way to heat a building.
- **Convenience** - having to manually switch on heaters a few hours before meetings and events meant that the building was not suitable for unplanned use. Users had to coordinate and agree which member would go to the building and switch the heaters on.
- **Comfort** - even with electric heaters, the building used to be very cold and it seemed to cool down very quickly after the heaters were switched off.
- **Environmental concerns** - the community is based in the LDNP and its members are, in the majority, environmentally aware. They were keen to find more ways to save of energy and reduce their impact on the environment. They concluded that the electric heaters were not a sustainable or an affordable heating solution.

The renewable energy solution

The Thirlmere Recreation Hall Management Committee approved the programme of upgrading the building. After considering different options, it became apparent that a wood burning boiler was the most cost effective and environmentally friendly solution for the hall.

A vital element in the project was the appointment of the Parish Clerk as Project Manager (a volunteer) who provided the link between the workforce (partially volunteers), and the Committee.

Sustaburn were appointed to assess the site and determine the appropriate system to be installed. They are a Microgeneration Certification Scheme (MCS) certified company (MCS is the Government standard for microgeneration technologies and installers) based in Lancashire specialising in the design and installation of biomass heating systems.

A 20 kWt (kilowatt thermal is a heat measuring unit) biomass boiler with radiators was proposed as the best heating solution for the building. The size of the boiler could have been smaller. But since the building is used intermittently, a decision was made to install a boiler with a bigger capacity to reduce heating time and make the system more flexible to demand.

The boiler uses wood pellets as fuel, which is supplied every six weeks and monthly during high usage periods such as winter. The boiler is a 'vacuum system' which means that when the use of the building (and therefore heat demand) increases, a bigger pellet storage tank could be connected. This allows the system to cope with potential future demand increases, providing flexibility for the community. As the boiler is fully automated, the community is able to programme when it needs to be switched on or off.



In association with

The process to make it happen

- **Obtaining finance:** the committee submitted an application for Community Energy Saving Programme funding which was not successful. However, several alternatives were investigated and the Lake District National Park Authority (LDNPA) and Cumbria Country Council provided 100% of the funding for the project.
- **Community consultation:** the wider community was consulted about the project with no opposition to installing a biomass heating system.
- **Planning permission:** an initial planning application was made to LDNPA for the overall hall refurbishment, including insulation. Also, a formal building regulation application was made relating to the housing of the biomass boiler. An estimation of emissions produced was required as with any wood burning appliance. Approval from the LDNPA was relatively straight forward but they did request that the flue was coloured black to blend in with the local surroundings.
- **Installation:** the biomass system took a week to install. During installation people were able to use the hall. The hall had a boiler room in the basement which proved an ideal site for the new biomass equipment and a 170 litre domestic hot water cylinder to feed the toilet and kitchen sinks. The room is also big enough to store a supply of bags of wood pellets, which can be delivered a tonne at a time but a larger amount would require an ancillary building for storage.

Key issues

- **Irregular use of the building:** Thirlmere Recreation Hall does not have a set pattern of use which means that heating demand is not consistent. The new biomass heating system still requires some planning by community members to ensure that the building is warm whilst using as little energy as possible. Currently, the system has been set up to be on for 3 hours per day so the building stays above a certain temperature which allows for some flexibility in usage.
- **Finding a fuel supplier:** identifying the right supplier of fuel was a difficult challenge for the community. They received support from the installer at the early stages of the project in order to source a suitable fuel. Going forward the community will continue to assess different suppliers to ensure that they source local, good quality, sustainable fuel for their biomass boiler.



Frequently asked questions

- **Fuel:** ‘how much do I need?’, ‘how much does it cost?’, ‘where can I find suppliers?’ – The installer helped answer these questions.
- **Technology:** ‘Is a biomass heating system the best solution?’ – members of the community visited other local installations in similar buildings to learn from others’ experience and see the technology working.
- **Renewable Heat Incentive (RHI):** ‘will we be able to benefit from the Government’s RHI?’ – at the time the biomass boiler was installed, the RHI hadn’t been announced. The community decided to take action as it made financial and environmental sense even without the RHI. Now they can consider applying for the RHI and benefit from an extra source of income.

The results so far

The community had an Open Day in March 2011 to celebrate the renovation of the hall. Thanks to the dedication of the community members the hall now has insulated walls and ceilings, which improves the building’s ability to retain its temperature, making it more energy efficient.

The biomass boiler has been running throughout the extreme weather conditions during the winter months, providing a high level of comfort to the users of the building and saving money on energy bills. Fully automated controls allow community members to programme the biomass boiler. The boiler is easy to use and only requires manual feed of the pellet store. Lighting and cleaning is automatic with the ash only needing to be emptied every 2-3 months.



The hall is now open to overnight stays, functions, charity events and a variety of community activities which are benefiting the entire community.

“The Biomass boiler system was put in during a very cold winter. It has been so good to arrive to a warm hall. This system has made it easy to preset the heat to come on and heat the hall before people arrive. What has excited the community most is the wonderful hot water that comes out of the taps! It has been a topic of conversation and cause of great excitement. A joy to wash-up”

Sally Bickerdyke, community member

Key contacts and further information

For more information contact Sally Bickerdyke on sally.bickerdyke@btinternet.com or visit <http://www.sustaburn.co.uk>

Providing affordable warmth through district heating

Find out how a community living in a block of flats in Hyde has benefited from reduced energy bills, improved comfort and lower carbon emissions thanks to a district heating system.

The owners

New Charter Housing Trust is a social housing association (also known as a Registered Social Landlord) based in Ashton-under-Lyne, Greater Manchester.

Their aim is to support communities by providing safe, comfortable, secure and affordable homes through partnerships with residents and others.

The motivation for change

New Charter Housing installed external insulation and other energy saving measures in a community in Hyde (a 16-storey building with 94 flats).



However, there were still several challenges facing the Trust and this community:

- **Gas boiler safety checks** – each flat had a gas boiler installed. This presented a safety risk and required annual gas safety checks to each of the 94 flats, which were expensive and time consuming. Some of the boilers in the block of flats had started to fail and needed replacing.
- **Different tariffs and energy providers** – each household arranged their own contracts with energy suppliers and paid for their energy usage individually. This meant that they weren't benefitting from the best deal available by bulk purchasing energy.
- **Fuel poverty** – some community members, especially the elderly living in sheltered accommodation, were not keeping their flat warm enough in order to be able to afford their energy bills. During the cold winter months this presented a health risk for these vulnerable residents.
- **Reducing carbon emissions** – New Charter Housing Trust was looking for a green, sustainable alternative to their current heating system in order to fight climate change.

The renewable energy solution

New Charter Housing Trust appointed Belfry Group to address the challenges that had been identified, by developing a new district heating system. Belfry Group are a Cheshire based, Microgeneration Certification Scheme (MCS) certified company. MCS is the Government's standard for microgeneration technologies and installers.

The solution developed, called Ecopod, is based on a combination of eight highly efficient cascade gas boilers which replaced the individual boilers in each of the 94 flats. The system is also connected to 20 solar thermal hot water panels, which provide hot water using daylight. The boilers are used as back up when the solar panels can't meet hot water demand. The heated water is distributed to each apartment by a highly insulated pipe system.

The solar panels and boilers are located on the top of the building, which saves space in the flats. Each flat has been fitted with heat exchangers and heat meters to allow residents to monitor the amount of energy being used. In addition, a Business Management System (BMS) is used to centrally monitor the energy use in each flat and to provide 24 hour information regarding system performance.



The process to make it happen

New Charter Housing Trust and Belfry Group engaged and shared information with the community on the new district heating system. The partnership provided support to residents to solve any queries.

The installation was done in one day. Community residents were informed in advance. They were also provided with catering facilities in a community room during the time that the installation was being carried out, giving them a chance to interact and minimising disruption.

Key issues

- **Understanding behavioural change:** some community members found it difficult to understand concepts such as energy conservation. In order for the system to operate at its best efficiency, behavioural measures needed to be adopted by the community; such as using hot water during the day (when the solar panels operate), turning the thermostat down and keeping the windows closed to avoid heat escaping the flats. Through workshops, information leaflets and post installation engagement community members have become familiar with these concepts.
- **Acceptance of metering:** some members of the community were initially reluctant to having heat meters installed as they thought that they would have to pay more for the heat used. It was explained that a flat rate would be charged and that heat meters are a way to ensure that they were in control of the energy they use.
- **Cost versus benefit:** the Trust fully financed the project by using their borrowing power. The renewable energy solution was more expensive than simply replacing individual gas boilers. However, the up-front costs were weighted against savings on running costs, carbon reductions and energy bills for the community.

Frequently asked questions

A number of key questions were raised:

Questions from New Charter Housing Trust

- **'How will the system be maintained?'** – a partnership was created where Belfry Group is responsible for the maintenance of the boiler system and solar panels whilst the Trust in-house heating team service the individual apartments.
- **'How do heat exchangers work?'** – heat exchanger technology was new to the Trust. Their heating team are now trained in heat exchanger operation and maintenance.

Questions from the community members

- **'Is this going to cost me money?'** – some residents were initially mistrusting of the new district heating system. However, through engagement and a better understanding of how the new system would work and the benefits expected, the residents were happy for the system to be installed.
- **'How does the system work?'** – although the Ecopod is a complex system, it is quite straight forward for people to use at home. The system is similar to other heating systems, with controls and thermostats. During open evenings residents learnt how the system would work and were shown the equipment that would be installed in their homes.

The results so far

The district heating system has now been running for over a year, bringing the following benefits with it:

Benefits for New Charter Housing Trust

- **Control over energy bills:** now there is a single gas provider for the block of flats with the Trust as the customer. The Trust then charges a flat rate to all flats as part of their services charge, making the system very easy to manage.
- **Reduced gas safety checks:** the district heating system only requires one gas safety check every year (rather than 94). Because the boilers are located on the roof, any gas associated risks from the individual flats has been eliminated.
- **Carbon savings:** an estimated reduction of 90,287 tonnes of carbon dioxide per year.
- **Renewable Heat Incentive (RHI):** the Trust is currently applying for the Government's RHI, which if successful will pay an income for the heat generated by the solar thermal hot water panels.

Benefits for the community

- **Savings on energy bills:** each flat is charged £4/week for their heating and hot water. This will be reviewed annually to reflect changes on the gas usage and to ensure the community is charged fairly.
- **Savings on water bills:** because the new system doesn't need to store hot water in cylinders residents are benefiting from a reduction in their water usage.
- **Higher level of comfort:** residents are now able to heat their flat to the required temperature as heating has become affordable.



"We are very satisfied with the work, and especially the hot water, it is much better than before. The work has been done to a high standard and the men were very friendly. We had a few problems with the previous old boilers which were in the kitchen, now that they have been removed there is a little bit more room in the kitchen and the kitchens look much better"

Mr & Mrs Doyle, community residents

Key contacts and further information

For more information contact Daniel Vose at danny.vose@newcharter.co.uk or visit <http://www.newcharter.co.uk>

or more information about the Ecopod contact Keith Rimmer at krimmer@belfrygroup.co.uk or visit <http://www.belfrygroup.co.uk>

Combining renewable energy technologies to reduce energy bills

Find out how a village hall in Lancashire has reduced its energy bills and carbon emissions through a combination of renewable energy technologies.

The owners

Barley is a small rural community located at the foot of the Pendle Hill in the Forest of Bowland's Area of Outstanding Natural Beauty (AONB).



Barley Village Hall was built in 1884 as a Methodist chapel. In 1942, Barley Parish Council bought the building for use as a village hall. The building has been well maintained and facilities have been improved to provide a high quality venue for the local community. The hall is regularly used for a range of social events and hired out to other organisations.

The motivation for change

The hall is of solid stone construction and has a pitched north to south facing slate roof. An industrial oil hot air heating system provided space heating to the majority of the building. With a smaller, more modern oil fired combi boiler added in 1999 to heat a building extension.

The existing oil hot air system was becoming increasingly expensive to maintain. It was also very noisy as a large fan provided the hot air. For these reasons, rather than replacing like for like, the Hall's committee decided to look at options for installing a renewable alternative which would:

- **Reduce heating costs** – the previous heating system was very expensive to run and the committee wanted to look into a solution that would reduce the Hall's overall energy bills.
- **Reduce fuel price uncertainty** – the heating system run on oil, which made it difficult to budget for energy bills due to the unpredictability of fossil fuel prices.
- **Showcase what can be done** – to reduce energy bills and carbon emissions in community buildings to Barley village residents and other communities.

Another motivator for the project was the availability of grants for renewable energy projects.

The renewable energy solution

A member of the committee was given responsibility for the project and a report was commissioned to look into the options available. The committee received advice from Lancashire Community Futures about which technologies to install.

The solution agreed in 2006 was a package of:

- **Air source heat pumps (ASHP)** – three ASHPs replaced the oil hot air system to provide space heating as well as cooling. The two 7kWth (kilowatt thermal is a heat measuring unit) smaller units heat the upstairs hall and a third, bigger (14kWth) unit heats the downstairs area.
- **Solar photovoltaic (PV) system** – a 3kWp system was installed on the south facing side of the roof in order to produce some of the electricity needed to run the larger heat pump.



Other technologies considered were ground source heat pumps. These were ruled out due to the restricted area of the site and the higher up-front cost. The smaller, more efficient oil fired combi boiler is still in use and continues to heat the extension.

The renewable energy technologies were part of package of measures to refurbish the Hall which also included insulation. The total cost of the project was £130,000. £30,000 of this was spent on the renewable technologies. The project was fully funded by the Forest of Bowland Sustainable Development Fund (65%) and DEFRA Rural Development Service Fund (35%).

Local installers were used for the project to ensure that work requirements are carried out promptly. The ASHPs were installed by Askew Heating and Cooling Solutions and Sundog Energy Ltd installed the solar PV system.

Key issues and considerations

- **Planning permission in AONB:** despite the fact that the Hall is located in the Forest of Bowland's AONB, obtaining planning permission from Pendle Borough Council was a relatively simple process.
- **Technology issues:** one of the heat pumps had initial performance issues which were promptly addressed by the installer free of charge, including replacement of parts. The problem has now been solved.
- **Learning how to use the system:** the users of the building have gone through an important learning curve in order to ensure they know how to run the renewable energy system as efficiently as possible. There are a few tasks that need to be carried out to ensure that the system works efficiently whilst providing good levels of comfort. These include monthly cleaning of filters or turning the heat pump on 20 minutes before the building is going to be used in colder months.
- **Understanding Government incentives:** at the time the project was commissioned a scheme called Renewables Obligation (RO) offered a reward for generators of renewable electricity. After registering the solar PV system under the RO the community decided not to continue as the RO payments received were too small for the administrative effort required. The introduction of the Feed in Tariffs (FITs) presents a simplified way to receive payments for the generation of renewable energy. The committee are currently investigating registering their solar PV to receive FITs.



The results so far

Five years after commission of the new heating system the community has continued to benefit by:

- **Protecting the community from rises in fuel prices** – electricity now represents the main proportion of the building energy use (rather than oil). The Hall's committee can now negotiate fixed prices for the electricity used with energy suppliers, giving them greater control over their bills.
- **Reducing energy bills** – the huge increase in oil prices since June 2010 would have had a great impact on the fuel costs for the Hall with their old heating system. The Hall has seen a substantial increase in use since the renewable energy system was installed so it is not possible to fully compare energy savings. However, there is no doubt that the Hall is now being heated more cost effectively.
- **Reduced carbon emissions** – the system saves approximately 3 tonnes of carbon dioxide per year.
- **Increasing energy awareness** – users of the building have increased energy awareness thanks to the visibility and operation of the technologies. Other communities have expressed an interest in the project and the Hall regularly receives visits from people interested in developing similar projects.

After the success of this project, the Hall's committee are now applying to the Lancashire Environmental Fund to secure funding for additional measures to make the building more energy efficient. These measures would include additional insulation and the installation of an air to water heat pump for underfloor heating.

"The changes to the heating system have been greatly appreciated by user groups giving us a controllable and reliable system. The combination of Solar PV and Air Source Heat pumps has generated interest in these systems over a wide area of Lancashire. We are proud to have a Hall with leading technology in our village"

John Connor, Chairman Barley Parish council

Key contacts and further information

For more information contact David Wetherill on info@barleyvillagehall.org

For information about the installers contact:
<http://www.askewsltd.com>
<http://www.sundog-energy.co.uk>

This case study provides an update on an earlier case study produced by Elizabeth Bruce Associates. For more information visit <http://www.barleyvillagehall.org>

Frequently asked questions

A number of key questions were raised:

Are heat pumps noisy?

- The noise from the heat pumps is noticeable by the users of the room where they operate. But they are less noisy than the original oil fired system. Using two small heat pumps for the first floor (instead of a larger one) reduces the noise.

Is the building suitable for heat pumps?

- The usage patterns of the building allowed the committee to understand whether air source heat pumps were the right solution. The insulation was increased in order to reduce heat losses and ensure that the heat pumps worked efficiently.

Will heat pumps reduce carbon emissions?

- Heat pumps use electricity to run but for every unit of electricity used around 3 units of heat are generated. In order to further increase the carbon savings of the heat pumps, the solar PV system installed produces renewable electricity which displaces the bulk of the National Grid electricity used to run the bigger heat pump.

Generating wind power and income for a community in Croxteth

Find out how a social enterprise within a community in Croxteth is taking advantage of the opportunities presented by generating their own energy from wind power.

The owners

The Neighbourhood Services Company (NSC) was established in 2001 as a social business specialising in providing employment and training services for unemployed residents of the Alt Valley area of Liverpool. NSC is part of the Neighbourhood Services Partnership, a partnership of social enterprises providing a range of services to the community.

NSC currently manages and provides maintenance for a range of community assets including:

- **Larkin's Farm** – a 105 acre community farm.
- **Communiversity** – a community education centre (including: a library, café, recording studio, office and conference facilities).

The motivation for change

Over the last year, the NSC reviewed their services and assets to identify areas where improvements and efficiency savings could be made. They identified the potential for generating their own renewable energy on site at Larkin's Farm to provide power for the community buildings they own (Larkin's Farm and Communiversity).

The main benefits identified for the community were:

- **Tapping into the potential of the site to produce energy** – the Larkin's farm extends over 100 acres.
- **Generating a source of local income** – finding alternative, reliable sources of income is a challenging task for most community groups. By installing a renewable electricity technology the community can benefit from Government incentives such as the Feed in Tariff (FiTs) scheme.
- **Engaging the community** – in environmental issues and promoting renewable energy technologies which can benefit the community now and for years to come.
- **Reducing carbon emissions** – generating energy from a renewable source such as wind could reduce the overall carbon emissions of the community.

The renewable energy solution

After consideration of all the renewable technologies available, it was decided a wind turbine was the most suitable option, because:

- The site was in an ideal location, away from obstacles such as trees and residential buildings.
- In the right conditions wind turbines have potential to generate considerable amounts of electricity for a community whilst making money from the Governments' FiT scheme.

NSC commissioned a feasibility study to look at:

- Suitable locations for the turbine within the farm, to make best use of the wind.
- Expected wind speeds.
- Expected electricity to be produced by the turbine and associated cost savings from replacing power from the National Grid.
- Potential income generation from the FiT scheme.

The study, produced by Eco Environments Ltd, confirmed that a wind turbine would be a good option for the site. A 6 kilowatt (kW) wind turbine was installed in March 2011.

Since both the turbine and the installer are Microgeneration Certification Scheme (MCS) approved (the Government scheme required for installers and equipment of microgeneration technologies) the community will be able to register the installation with Ofgem and benefit from the 20 year income available from the FiT scheme.



Key issues

- **Community buy in:** a key issue for wind turbine projects. NSC found little opposition to the project in the community. However, they did commission a noise assessment as one community member was concerned about potential noise.
- **Funding:** NSC successfully received funding from Foundation, Liverpool City Council through the Liverpool Community Renewable Energy Fund and the Building Research Establishment.
- **Planning:** NCS viewed the process of securing planning permission as relatively straight forward, even though they were required to submit additional information including the exact position of the turbine, and anticipated noise levels. Overall, they viewed Knowsley MBC Planning Department (the relevant council) as extremely helpful and supportive throughout the process.
- **Installation:** there were delays to the installation of the turbine due to a number of issues such as confusion over risk assessment requirements for the site and unsuitable weather conditions to dig the foundations and set the concrete base.

Frequently asked questions

The farm is located in an area crossing two different local authority boundaries (Knowsley and Liverpool).

Questions from the Local Authorities included:

- Where will the wind turbine be located?
- How will the energy generated be used?

Despite the questions, both councils were supportive of the project, and the turbine installation is a good example of how, with foresight, social enterprises can work across local authority boundaries.

Answers from the owners

NSC explained that the turbine is directly connected to the grid via an on site inverter and meter. When the turbine generates electricity, it is fed into an inverter to convert it to readily usable electricity, which is used on site, helping to produce locally grown, healthy food for the community. Any surplus electricity not used on site is then exported to the National Grid, with the profits being re-invested in the community.



Both Councils were supportive of the project, and the turbine installation is a good example of how social enterprises can work with local authorities.

The results so far

The turbine was only installed in March 2011, so it is still early days. However, NSC is happy with the results so far and they expect their turbine will:

- Generate 9,000 kWh of electricity per year (the equivalent of providing the electricity needs for two three bed semi-detached homes).
- Save 4.9 tonnes of carbon dioxide per year from replacing the use of fossil fuels from the National grid with renewable energy generated by their turbine.
- Earn an income of about £2,500/year from the FiT scheme for the electricity produced by the turbine. This amount will change every year in line with the retail price index and it is guaranteed for 20 years. In addition, the social enterprise will be saving money in their energy bills by using the electricity produced by the wind turbine instead of buying electricity from the National Grid.

Communicating the results

NSC wants to communicate the benefits of generating renewable energy to the community through:

- Displaying the results of the on-going performance of the turbine on the NSC website and potentially other NSC community web sites.
- Exploring real-time displays of energy generation
- Including information into environmental education programmes for school children and the community.
- Promoting the projects across a range of community groups and at community events held by the NSC Community Learning Champions.



"I think the turbine is fabulous. It's great to see it spinning round generating energy. It's good for the community and good for the planet; I think we should have more!"

Mrs Gaye Johnson, Alt Valley resident

Key contacts and further information

For more information contact Phil Knibb at phil@communiversity.co.uk or visit <http://www.nscliverpool.co.uk>

The turbine project was developed with support from: Alan Johnson, Symbiont Consulting Ltd info@alanjohnson.co

For more information about Eco Environments contact David Hunt at david.hunt@eco-environments.co.uk or visit <http://www.eco-environments.co.uk>