Gamblesby village hall's ground source heat pump

When the village hall in Gamblesby, a small farming community near Penrith in Cumbria, was in dire need of renovation, local people seized the opportunity to introduce renewable energy measures alongside energy efficiency improvements. A ground source heat pump was their technology of choice, and it now provides an environmentally-friendly and cheap heating system.

When did the project begin?

The heat pump was succesfully installed in October 2003, and has been working well ever since. The next phase of renovation is well underway - see 'Next steps' below.

Who was involved?

The main driving force behind the project is the 12-strong Gamblesby Village Hall Committee and the village's residents, who have almost single-handedly developed and pushed this project on with little outside intervention. CLAREN, part of the Countryside Agency's Community Renewables Initiative, provided renewable energy advice to the committee.

How was it funded?

The total cost of the project was £42,016, made up as follows: 40% from North Pennines LEADER+ programme (an EC-funded initiative for assisting rural communities); 26% from the Northern Rock Foundation (26%); 17% from local fundraising initiatives and in-kind support; 10% from Eden District Council; 5% from Shell Better Britain Campaign; and 2% from CLAREN (a Countryside Agency initiative) (2%). All grants have been secured to proceed with the £208,000 phase 2 project, with the Cumbria Community Foundation putting money up front.

> **"Village halls are traditionally cold, draughty and expensive to heat. By using ground source heating, we now have a warm, welcoming venue that will save us money and is good for the environment**
>
> James Watson, trustee

What were the targets and aims?

By incorporating renewable energy and energy efficiency measures, the committee aimed to:

- make the building warmer and so useable by the whole community as a place to meet and hold events
- provide a convenient, low-maintenance and low-cost heating solution
- capitalise on the funding streams available for 'green' projects
- create a sustainable building that should soon be able to heat itself with no external inputs

How was it implemented?

The village hall, a 150-year-old stone building and Gamblesby's only remaining amenity, had been closed since 2000. Run down, cold, draughty and damp, its only heating had been from overhead electric heaters that scalded people's heads while leaving their feet frozen.

Limited funding is available the renovation of village halls and similar buildings, but competition is fierce. The Village Hall Committee realised that what was needed was a 'unique factor' to make Gamblesby's application stand out from the crowd, and decided that, by making the building as environmentally-friendly as possible and using natural, locally-sourced materials, they would gain an edge. This strategy worked, and helped secure a variety of grants, in addition to which the villagers' own fundraising activities, such as garden open days, auctions and carol singing, were very successful.

The committee approached CLAREN to help assess the building's potential for renewable energy. Ground source heating was chosen for several reasons: it was less expensive than solar photovoltaic panels; digging up the grounds to bury the pipework fitted in with plans to renovate the car park; and the underfloor heating that the pump would supply could be fitted at the same time as the renewal of the hall's rotting timber floor. It was also decided to improve the building's energy efficiency by installing low-energy lighting and using locally-sourced sheep wool insulation for the walls and roof.

The project costs were kept to a minimum by villagers sourcing many of the materials and equipment and undertaking a large proportion of the work themselves, seeking technical advice where appropriate and available. This meant that some

committee members had to master some of the specialist techniques relating to heat pump technology. In-kind support, such as local farmers giving their time and machinery to dig the trenches, was also crucial.

The pump's pipework is buried in 2m deep trenches beneath the car park. The system became operational in November 2003 and, when more of the renovation work was completed a month later, the hall's reopening was marked by a celebration party. The maintenance requirements of the equipment are expected to be very low, likely to involve servicing of the pump just once or twice a year.

Following the publicity support by CLAREN fame of the project has spread far and wide and information about the project is still in high demand with regular requests for talks, seminars and conferences across the region, as well as press releases, newsletters and case studies.

Achievements

- the heat pump has been emitting heat up to 40^{o}C, far higher than originally expected
- the hall has reduced its electrical heating requirement from around 12kW (for the four electric bar heaters) to just 3kW (the pump's running requirement). This has meant that electricity bills and carbon dioxide emissions have been cut
- the hall's heat requirement is likely to be met almost totally from the heat pump – the original electric heaters have been retained just as a back-up
- the community now has a facility that is useable year-round
- local people, some of whom were previously indifferent about the environment, have become increasingly committed to and vocal about green issues. Some have expressed an interest in installing their own renewable energy systems.
- The committee have produced a DVD of the project to aid with the presentation of the project
- The committee continues to spread the word about the project, recently hosting a conference for 42 North West village hall advisors to share knowledge and information.

Three key success factors

1) the commitment and enthusiasm of the local community continues to ensure the scheme's success

2) an innovative solution to a common problem meant that 83% of the funds could be obtained from grant sources, so only 17% of the costs had to be made up by the community in funding initiatives and in-kind support

3) the process has been good fun and has genuinely brought the community together, including young and old, newcomers to the village and those who are locally born.

Next steps

The installation of the heat pump and the first phase of the village hall renovations is now complete, so the committe in Gamblesby is embarking on phase 2 of the project: the demolition of a poor quality extension and its replacement by a modern and fully insulated structure with improved facilities and a meeting room. In addition, a small 6kw wind turbine is to be installed to heat water, drive the heat pump and to sell any excess energy to the grid.

The extension and wind turbine are expected to be completed by August 2006. This will improve the village hall as a venue as well as make its heating completely sustainable. The future goals of the committee are to look at how to respond to the demand to share the lessons and achievements of the project.

LESSONS LEARNT

1 sustainability does not come cheap, but it can make a scheme that would otherwise be unattractive to funders a much more viable opportunity. A conventional refurbishment of the hall would have cost a comparatively modest £17,500, but would have been virtually impossible to fund

2 retrospective funding arrangements can be a hurdle to small voluntary organisations. Gamblesby's biggest problem has been having to incur expense up front in order to access public funding. This particularly affects projects involving large items of capital expenditure, such as heat pumps or wind turbines.

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The Gamblesby village hall project is a member of the **Community Action for Energy** network. Community Action for Energy (CAfE) is an initiative of the Energy Saving Trust that promotes and facilitates local community based energy projects. This case study is one of a series showcasing the most exciting and innovative of the 2500 projects that are part of the CAfE network.

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