

Monikie Memorial Hall Biomass Boiler

Introduction

Monikie is located in a rural setting ten miles north east of Dundee. The community hall was built in 1927 and although classed as an official war memorial, the hall is operated as a charitable organisation and is dependant on donations and collections.

A renewables group for the hall was established in July 2008 with the aim of cutting carbon emissions and reducing heating costs. Before embarking on the renewable project, the hall received funding towards energy efficiency measures, and spent six months giving attention to major heat loss areas and took several actions, such as: insulating the roof space; portioning off the stairwell leading to an unheated loft and storage area; renewing an ill-fitting emergency door and; draught proofing other doors.



Equipment

50 kW KWB Wood Pellet Boiler

Initial ideas were to install a ground source heat pump, but after some research the group found that the hall's distribution system was not compatible with this technology, and also there were a number of disadvantages which were difficult to overcome, including the installation of additional non-renewable heaters to provide back up during the colder months. Having decided on a biomass boiler, four installers were invited to tender, of which two were selected and meetings were held with the contractors. It was important to the renewables team that these meetings took place to get a thorough understanding of each firm's recommendations and optional components, such as buffer tanks. The team decided to accept the quotation of their preferred installer for the following reasons:

1. The team were most comfortable with them and felt that they would give considerable support with their expertise during and after installation.
2. They were the most innovative, and went to greater lengths to explain the benefits of the indoor pellet storage and of the accumulator tank, and recommended a larger 50 kW boiler.
3. They would not be contracting out as much of the work as others – this would facilitate the installation process.
4. They gave the cheapest quote for the biggest boiler.

Cost and Grant Funding

Total Project cost	£ 38,605	The remaining funding was obtained through: Tayside Rural Leader Funding £13,603 Own funds £1,839
CARES grant	£ 23,163	
CARES grant percentage	60%	

Fuel Bill Savings

LPG heating costs a year - £2,516. To replace LPG with wood pellets, taking into account the efficiencies of the boilers, would cost approx £900 less a year, this does not include the discounts available for bulk deliveries.

In the first year due to down time associated with teething problems, £700 was saved.

Emission Savings

Annual CO ₂ savings (kg)	6,693
Lifetime CO ₂ savings (kg)	167,325

Project Monitoring

The group take regular readings and record deliveries.

Local Impact

The user groups and the community showed great interest in the new technology, and there was universal approval of the new system which will be a major factor in the future of the hall.

Lessons Learned

The trustees hesitated at first when the project was first considered – they did not have the expertise or experience to ensure success in such a project. They quickly found that there are always people available to lend their help and experience in worthwhile projects, and all it needed was enthusiasm and drive to get the changes made and raise the required funding.

The first pellet delivery was a bit of a disaster! The distance from the road to the pellet store is almost to the maximum recommended and it was unfortunate that either the pellets were not strong enough or that they were blown too fast but the net result was that a fair percentage of them disintegrated and left a few feet of sawdust. Fortunately the suppliers took immediate action to resolve this issue. Teething problems are common but these can usually be sorted to ensure all runs smoothly!



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