

Garrannan Blackhouse Village Wind Turbine



Introduction

Urras nan Garrannan Ltd (UnG) is a Company Limited by Guarantee whose main aims include the restoration and upkeep of historical houses within the Outstanding Conservation Area at Garrannan, Isle of Lewis. The ten buildings are traditional blackhouses which are used for tourism related activities, and which attract a large number of visitors annually. The houses were restored during the 1990s and are used as self-catering cottages, a restaurant, a youth hostel, a museum and an office. This is a unique project which has seen the conversion of old buildings and new technologies come together.

Equipment:

Four 6kW Proven wind turbines

During 2003 Garrannan Trust looked into providing a solution to their high heating bills. At the time it was decided, having carried out a scoping study, to install a groundsource heatpump system. The group over the years, realised that the age and type of building they had was not suitable for this type of low grade heat, and this second project was seen as a way of rectifying the system and ensuring a higher grade heat was being provided to the buildings, using the existing heating distribution system.

It was decided that four Proven turbines would go a long way to tackling the group's energy needs as well as enabling the group to access the Feed in Tariffs (FiTs). It was also decided that water storage tanks would be the best way of making use of their existing heating system and ensuring efficient storage of energy. During periods of low or no wind, the system would draw from the local distribution network. The project was then broken into two phases, with the turbines installed in phase one and the heating currently being designed as phase two.

Cost and Grant Funding

Total project cost (including heating design and water storage tanks)	£ 157,496	The remaining funding was obtained through: Comhairle nan Eilean Siar (local authority) Garrannan Trust's own resources
CARES Grant	£49,946	
CARES grant percentage	31%	

Fuel Bill Savings

UnG has been carefully monitoring the energy production of the turbines since they were installed at the end of September 2011. The four turbines totalled 46,691kWh during five winter months, which is much higher than expected, and should exceed the estimated annual kWh generated. The site is on high ground and exposed, which makes a big difference to their production. The trust are expecting over £10,000 a year from the FiTs to go towards their running costs and heating which will make a massive difference to them.

Emission Savings

Estimated kWh savings p.a.	52,000
Annual CO ₂ savings (kg)	22,360
Lifetime CO ₂ savings (kg)	447,200

Project Monitoring

Gerrannan Trust hopes to have a Logic Energy Monitoring system installed which will measure wind speed, wind direction and production. This information is to be made available to the wider community through a web address which will hopefully educate all in the wider community as to the benefits of renewable energy. Other community projects locally are having similar systems installed, which will also enable groups to compare their projects.

Lessons Learnt



- Always keep Historic Scotland informed of your plans.
- Speak to your local planning authority to ensure they are comfortable with the proposal.
- Ensure you show the two organisations above that you have tried your best to mitigate any visual impact on the site, or where possible that you have been able to locate the turbines out of sight, as in this case.
- Always start by gaining a good understanding of the heating demands of the building and assessing the heat loss calculations
- Ensure your system is suitable to the type of building it is to be installed in. Older buildings cannot retain low grade heat like new buildings can.

Derek McKim from Urras nan Gerrannan said:

“The assistance from CARES was vital for Urras nan Gerrannan in putting together the financial package for our wind turbines. It allowed us to reach financial closure much more quickly than would have been possible otherwise. At the same time the benefit to the Urras was not just financial. We benefitted significantly from assistance from the local project officer in getting the project literally up and running and have recently received our first feed-in tariff cheque. The project is therefore expected to provide us with a revenue stream into the future. In addition electricity from the turbines will be used directly by the Urras in our self-catering thatched blackhouses, which are set within a Conservation Area. The project has also provided visible evidence of the benefits of renewables to the economy of a remote, rural island community”.

For further information, contact:

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