

# THE SCOTTISH COMMUNITY & HOUSEHOLDER RENEWABLES INITIATIVE:

## Case Study 2: Westray Parish Kirk

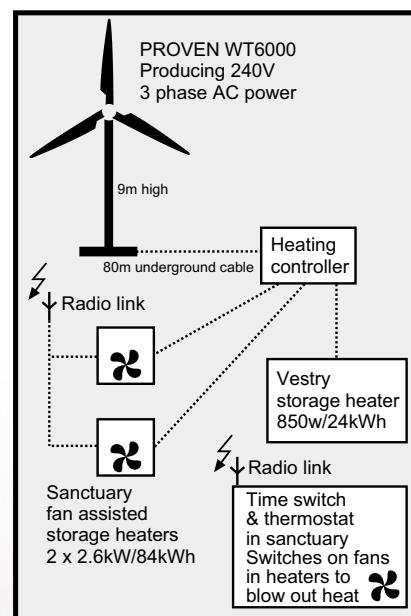


### Introduction

This case study provides an insight into the development of a community based renewable energy project on the island of Westray in Orkney, completed in March 2003. This was the second wind turbine in Scotland to be installed with help from the Scottish Executive and a Scottish Community and Householder Renewables Initiative (S.C.H.R.I.) and a grant implemented by the Community Energy Unit (C.E.U.) for Orkney and Shetland. It provides a demonstration of technology for the S.C.H.R.I. programme. The Westray Parish Kirk, has recently undergone extensive restoration and redevelopment and not only provides a place of worship but is also a frequented community facility.

### Targets & Aims

- To reduce the annual energy costs using a form of energy that was environmentally friendly.
- To increase temperatures in order to provide greater comfort levels in a previously cold building.
- To maintain background heat in order to eliminate dampness and deterioration.
- To develop the islands natural resources by making use of the near constant winds and to work towards being a 100% renewable energy island.
- To increase awareness of environmental issues and provide a demonstration scheme.
- To utilise local expertise and labour in managing and maintaining the project.
- To encourage harmony and a sense of caring, not only by people throughout the community working together, but by providing a clean and environmentally friendly source of energy, for the greater good of the church and the island as a whole.



### Involvement

The project was first conceived by The Kirk's Session. Proven Engineering of Kilmarnock, Scotland supplied the 6kW turbine, which was erected by Bryan J. Rendall (Electrical) Ltd with foundations laid by island contractors. Other participants in the project were the Kirk's Congregation and the people of Westray. The projects success was mainly due to the foresight and vision of the Rev Iain MacDonald.

### Funding

The community driven congregation secured an 81% grant from the C.E.U. toward the £26,850 (including VAT) cost. Additional funding was met from the Kirk's own building fund.

### Implementation (Technical Details)

Already using renewable energy in the form of a ground source heat pump to heat part of the ground floor, the Kirk Session hoped that a wind turbine would provide heat for the sanctuary. After a feasibility study, the project secured funding.

A 6kW Proven Engineering wind turbine was chosen with a gearbox-less design and innovative "flexing blades" which will continue to produce power even in gale force winds. Having a three bladed rotor and a 9m hub height, the turbine runs quietly, and is sited in a field 80m from the Kirk. Simple to install, it has a folding tower, enabling the turbine to be "tilted up". It is therefore easy and relatively cheap to inspect and maintain. A low maintenance cost of £200 per annum is envisaged. With an average wind speed for this site of 8m/s the turbine will produce an average of 72kW (units) of electricity per day - 144kWh units per day are expected in peak wind conditions. The turbine powers 2 industrial fan assisted storage heaters in the sanctuary and a conventional storage heater in the vestry. The heaters are specially designed to have a high thermal capacity meaning that they can charge up through the week and discharge all the heat on a Sunday when its required. Bryan J. Rendall (Electrical) Ltd designed the control system ensuring the heat was there when required.

### Would you like renewable energy to help your community?

Applications will be considered from any non-profit making organisation with an open constitution.

### First step

Contact your local S.C.H.R.I. Development Officer or visit [www.est.org.uk/schri](http://www.est.org.uk/schri)  
Community Energy Unit (Orkney and Shetland)

Colin Risbridger t: (01856) 888717 e: [colin.risbridger@hient.co.uk](mailto:colin.risbridger@hient.co.uk)

For further information about this project contact:

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