



DOMESTIC

Case study East Densham Farm Mid Devon

RENEWABLE ENERGY 4
DEVON



Introduction

Marcus Tucker and partner Rachel moved into East Densham Farm in March 2004. The farmhouse had no central heating, and with their first child expected, installing some was a priority. In addition to creating an acceptable level of comfort, Marcus is very keen to do his bit to 'make the world a better place', which is reflected in his management of the land and determination to use a sustainable form of heating.

Project development

Original quotes for a wood-chip system to heat the entire building and provide hot water to approximately half of it proved prohibitively expensive, so they were pleased to learn about the Vigas log boiler from Eco-Exmoor and Dunster Wood Fuels Ltd at the South West Wood Fair. Eco-Exmoor designed the system and managed the installation in January 2005, with the boiler supplied by Dunster Wood Fuels. A local plumber and electrician made the connections. The wood mainly comes from the farm.

How the system works

The boiler is a down-burning design with timing controls and variable output, providing hot water to a conventional hot water cylinder, and supplying 14 radiators. The log boiler is only used over the winter and when in full use is filled as tightly as possible with logs each day and the ash is removed weekly. The boiler needs to be run down and cleaned more thoroughly every four months, which requires partly dismantling the boiler (which Marcus does himself). Dunster Wood Fuels has the contract to carry out annual maintenance, and after commissioning there have been no significant problems with the system. There is an electric immersion heater in the hot water tank to provide back-up, and an oil-fired Aga range provides hot water to the other half of the house.

Costs and benefits

- The system cost £4500 and Marcus decided not to pursue funding through Clear Skies (now Low Carbon Buildings Programme).
- An accurate assessment of annual fuel consumption has not been made due to variable output and periodic use of the boiler. The type of timber used also varies.
- Carbon savings are also difficult to calculate because of the boiler's variable output and because it did not replace an existing system. However, one tonne of oven dry wood can replace 400 litres of oil: A net CO₂ saving of 1,072 kg.
- The 25kW Vigas boiler uses approx six tonnes of logs each winter, displacing 2400 litres of heating oil, with a carbon dioxide saving in excess of 6 tonnes. At £0.71 + 5% VAT per litre (Feb 08) the cost of oil would be £1789.20 whereas at the current cost 6 tonnes of logs would cost around £300. This means a saving of £1489 per year giving payback in 3 years. However Marcus uses his own logs so this shortens the payback time in this case.

Technical details

Boiler	25 kW Vigas log boiler
Fuel	Own supply of Ash, Oak and Birch 60cm logs, dried for 12months
Supplier	Dunster Wood Fuels Ltd
Installer	Eco-Exmoor, using a local plumber and electrician

Wider benefits

Marcus received grants from the Forestry Commission and South West Forest to plant and maintain woodland which enabled him to provide his own fuel at low cost. He is also keen to help promote the use of renewable energy in general, and wants to explore the future use of solar energy and hydro for the existing farmhouse and the conversion.

Marcus Tucker said: "We have young children, we want to minimise our impact on the environment and do our bit towards making the world a better place."

Further information

Eco-Exmoor: www.eco-exmoor.co.uk

Dunster Woodfuels: www.dunsterwoodfuels.co.uk

Contact RE4D

www.re4d.org

energy@re4d.org

0800 512 012

For independent advice and support

Image gallery

25kW Vigas boiler



Oak



Birch Wood

