



Case study Loyton Lodge Mid Devon

RENEWABLE ENERGY 4
DEVON



Introduction

Loyton is a hamlet of properties, a short distance from Bampton in Mid Devon. The focus of the community is Loyton Lodge, a shooting lodge owned by Alick Barnes. The Lodge provides hotel accommodation for 20 people and is also used for house party weekends and conferences. It opened in October 2003 and is partly new build and partly converted farm buildings.

Project development

- Mr. Barnes has been involved with the wood fuel industry for a number of years, as a founder member of British Biogen and DARE, and being one of five trial sites for growing short rotation coppice in an eight year DTI programme. He is also a member of South West Wood Fuels and is convinced of the merits of wood fuel, especially when the wood is generated from woodland management or from hedgerow trees.
- When Loyton Lodge was being developed to provide shooting accommodation, the opportunity was taken to use wood fuel in a district heating scheme to heat the Lodge and other neighbouring properties.
- Mr Barnes decided to install a large woodchip boiler that could be run at 50% capacity over the summer and could be subsequently expanded if required if the heat load increased.
- The new accommodation was completed in October 2003, and the wood fuelled boiler and district heating system commissioned in January 2004.

How the system works

The boiler provides 250 kW at full output, and is reduced by 50% during the summer months. This provides all the space heating and hot water for three local houses, two offices, one flat, and 20 accommodation units in the lodge itself. Fortunately the Lodge was already supplied with the necessary three-phase electrical connection.

A heat main runs for about 250m connecting all the properties, losing only 0.25°C over its entire length. A heat meter in each house measures how much heat each property takes from the system to allow individual billing. Woodchip fuel is currently sourced from Minehead Sawmills in loads of 25m³. It is fed into the boiler by an automatic auger and has a moisture content of 18-25%. One load lasts about six weeks in the summer and 7-10 days in the winter.

Costs and benefits

- The total installation cost about £100k; which includes the boiler house and store, heat main (£30 per metre), and all controls. Funding was received from Clear Skies and from EDF Energy to cover the majority of the cost.
- So far the boiler has produced 200 MWh of heat and saved 150 tonnes of CO₂ each year of operation.
- The lower running costs of using woodchip rather than oil means the biomass boiler costs 50% less to run than an equivalent sized oil boiler. This is likely to improve further in the future as the price of oil increases.

Technical details

Boiler

250 kW Binder (expandable to 350kW)

Installer company

Renewable Heat and Power Ltd, now operating as Wood Energy Ltd

Wider benefits

Mr Barnes took advantage of the opportunity to educate the local planning department on this type of biomass system and partly as a result he did not experience a problem with obtaining planning permission for the boiler. He is also keen to utilise other natural resources to make the community as self sufficient as possible in energy. In particular he is looking into production of bio-diesel and hydro-power.

Mr. Barnes said:

"I have been involved with woodfuel since the beginnings of British Biogen – this has been an ideal opportunity to prove its merits by installing an automated system of our own, and it works extremely well."

Further information

More details of the establishment can be found at
www.loytonlodge.com
www.woodenergyltd.co.uk

Contact RE4D

www.re4d.org

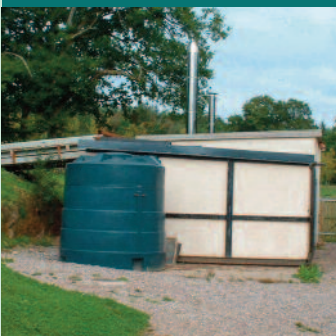
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For independent advice and support

Image gallery

Boiler house and fuel store



Insulated heat main



Meters for distributed heat system



Wood fuel feed to boiler

