



Case study Brimpts Farm Dartmoor

RENEWABLE ENERGY 4
DEVON



Introduction

Brimpts Farm is situated in the heart of the Dartmoor National Park in Devon and is run by Andy Bradford and his family. This Duchy of Cornwall beef farm is a prize-winning diversification farm. In addition to its core function, Brimpts hosts a flourishing tea room, bed and breakfast/self catering accommodation and a charming medium sized conference suite.

Project development

Andy Bradford began his vision for a biomass boiler after a visit to Switzerland to look at tourism in a national park. Andy decided to be one of the first people to install an automated wood chip boiler in Dartmoor. He wanted to use wood residue from locally grown timber and, potentially, supply timber to others. Quotes were sought from 3 suppliers and Wood Energy Ltd were chosen as supplier for a 120 KW Binder boiler.

The project has been in development for around three years as securing funding has held it back. Planning permission was required from Dartmoor National Park to re-roof the old barn that was to become the boiler house and wood storage area. RE4D offered the project a grant and time limitations drove the project forward, speeding forward the installation date. The boiler was delivered on site in December 2007 and the successful installation took place in February and March 2008.

How the system works

The boiler is sited in a boiler house adjacent to a fuel store with automatic auger feeding system. The boiler house has a three phase connection for the new boilers ignition system, which was already present on the farm.

Woodfuel Solutions have provided the chipping service for the first year's wood supply. The wood was felled from Andy's woodland leased from The Duchy of Cornwall. Andy is now managing a commercial chipper from The Forestry Commission which he will use to begin a wood fuel supply business as part of the Dartmoor wood fuel cooperative cluster group.

Costs and benefits

- Annual energy generation – 461.5 MWh.
- Carbon Savings total 108.5 tonnes per year.
- The installed cost of the system was £75,000. Andy received £13,000 from RE4D, £10,000 from the sustainable development fund, £32,000 from the DTI bio-energy capital grants, and a £20,000 loan from the Carbon Trust. Overall costs were slightly higher with building of a fuel store but own labour was used to keep this cost down.
- The boiler is replacing an existing oil boiler and will save Andy £6,000 pounds per year with payback on the boiler at just over 3 years at current oil prices.

Technical details

Specification

1 Binder RRK/RRF - wood-fuelled boiler, maximum capacity rating (MCR) of 149kW supplied with underfed hearth. Including:

- 150mm diameter auger-driven fuel feeding system suitable for G30 wood chip.
- 1 Binder KA100/55 fuel extraction system. Specified for a maximum storage area of 5.5m by 5.5m with maximum fuel height of 4m.
- 1 x 2,000litre buffer storage tank with tank insulation

Output

149 kw rating heat

Installers

Wood Energy Ltd

Wider benefits

The installation is the first among the planned wood fuel cluster group. A combined effort by The Forestry Commission, The Duchy of Cornwall, Dartmoor National Park and the Dartmoor prison offender's rehabilitation programme with support from DARE, RE4D and RegenSW. The cluster group will provide jobs on Dartmoor, will utilise local timber for a local fuel need and will be owned and managed by Dartmoor residents.

Andy Bradford said: "RE4D's Grant helped us make the push towards our installation, and helped wrap up the other financial aspects such as the Carbon Trust loan and Enhanced Capital Allowance. This together with other grant funding ... made the binder biomass heating system a really good financial proposition and hopefully we will see our savings [grow] as oil prices keep on going up and up."

Further information

For more details on facilities at Brimpts Farm go to www.brimptsfarm.co.uk

Wood Energy: www.woodenergyltd.co.uk

Contact RE4D

www.re4d.org

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For independent advice and support

Image gallery

Andy with the boiler



Part of the fuel feeding system



Wood pile

