

CASE STUDY: BIOMASS BOILER INSTALLATION



ETA HACK 130kW Install

The installation of a 130kW biomass-fuelled boiler system and renewable fuel storage facilities for a house and workshop on the Shropshire/Herefordshire border.

Faced with ever-increasing bills for heating the house and workshop with traditional, gas boilers, the owner needed to find a way of lowering their energy costs, whilst ensuring that the environment could also benefit by a reduction in the site’s carbon emissions.

Recognising the benefits that biomass heating offers, coupled with the availability of the Government’s Renewable Heat Incentive (RHI) - which pays a site’s owner for the heat produced by eligible renewable technologies (such as biomass wood-chip fuel) over a 20-year period – the owner decided to replace the gas heating system with a fully-automated biomass boiler.

Having engaged Edge Renewables of Shropshire to design, install and commission the biomass boiler- complete

with fuel-handling and control systems, the installation was completed and commissioned in August 2014.

The heat is provided in the workshop using one Dunham Bush heaters with built in heat exchanger



The Dunham Bush heater installed within the workshop

Headline Figures:

- Total capacity of 130kW
- 20 year estimated savings of £504,000.
- Payback within 3-4 years.
- Annual RHI Income of £14,300.
- Annual wood-fuel costs of £6,000.

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System Information

The system's total installed capacity of 130kW is achieved with one ETA Hack high-efficiency biomass boiler with low emission levels. The boiler provides heat for the site's domestic dwelling and workshop, and having automatic ignition, self-activated cleaning and large ash containers, it has been integrated into the automated control system to provide the client with an easy-to-use heat source.

In order to level out the peaks in the site's heat demands, Edge Renewables has incorporated an insulated heat accumulator tank within the biomass room. This allows for the automated sequence controls to store and release heat in the most economical way – quickly responding to the site's demands.

There is one 3,000 litre storage tank used on the site.

The heat produced is piped to each of the locations on the site by a highly-efficient buried pre-insulated pipe network.



The boiler, accumulator tank and expansion vessel within the plant room.

Fuel

The new system utilises wood chip, that conforms to the EN 14961-4 specification with a moisture content of between 25-30% when delivered to site.

This is being supplied by Edge Renewables from its biomass fuel production facility which processes timber sourced from sustainably-managed forests within the local area to help minimise transportation.



The new biomass plant room and chip store, before & after shots.

The Renewable Heat Incentive (RHI)

Following the commissioning of the project in 2013, the installation was approved for the UK Government's non-domestic Renewable Heat Incentive (RHI) scheme.

This scheme was designed to encourage the uptake of renewable heat technologies such as biomass boilers and pays the owner of a qualifying installation to generate renewable heat for a period of 20 years.

A Heat meter was installed at the site to record the usage of the system and provide accurate readings to enable the RHI payments to be successfully claimed.

This will pay back the cost of the biomass boiler installation, in around three to four years – thereby making a sound financial investment which will provide a comfortable return on the client's capital expenditure over the 20-year period.

Carbon Savings

As the system uses a sustainable wood fuel, which has absorbed carbon dioxide whilst it was growing, using it in a highly-efficient biomass boiler results in large savings in carbon emissions – when comparing it to the traditional alternatives using fossil fuels such as oil, LPG and natural gas.



About Edge Renewables (Shropshire)

Formed in 2011 in Much Wenlock, Shropshire, the company specialises in the design and installation of renewable energy technologies for homes, farms and businesses - such as biomass boilers and solar PV systems. In addition to this, the company also produces wood chip biomass fuel - a 'green', renewable fuel that is helping reduce the UK's dependence on fossil fuels.

In an annual report released by Ofgem for its RHI scheme - it was found that since its inception in November 2011, as of March 2013, Edge Renewables' clients accounted for some 19% of the total eligible heat generated under the RHI programme.

Find out more

To find out more, please call 0845 603 3833, email sales@edgerenewables.com or visit the website www.edgerenewables.com

