

CASE STUDY: BIOMASS BOILER INSTALLATION



950kW Viessmann boiler at Shropshire Poultry site

An annual cost saving of around £75,000 has been achieved with the installation of a 950kW biomass-fuelled boiler system and renewable fuel storage facilities for a successful poultry farm.

Faced with ever-increasing bills for heating the six poultry sheds with traditional gas fired radiators, this Shropshire based poultry farm needed to find a way of lowering its 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 company decided to replace the gas heating with a fully-automated biomass boiler system.

Having engaged Edge Renewables to design, install and commission a single biomass-fuelled energy centre - complete

with fuel-handling and control systems.



Above – The district pipe supplying the heat into the poultry sheds, before being insulated.

Headline Figures:

- Total capacity of 950kW
- 20 Year estimated savings of £1.8m
- Payback within seven – eight years.
- Annual RHI Income of £66,000
- Annual wood-fuel costs of £44,000

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System Information

The system's total installed capacity of 950kW is achieved with one high-efficiency biomass boiler with low emission levels. It provides heating for the sites six poultry sheds and having automatic ignition, self-activated cleaning and large ash container, 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 a pair of insulated heat accumulator tanks within the plant 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 are two 10,000-litre storage tanks used on the site.

The heat produced is piped to each of the locations by a highly-efficient buried pre-insulated pipe network, running from the single plant room and chip store.

Below: The accumulator tanks and expansion vessels.



Fuel

The new system utilises a 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 nearby biomass fuel production facility which processes timber sourced from sustainably-managed forests within the local area to help minimise transportation.



The auger linked to the walking floor wood chip delivery system and the Viessmann boiler.

The Renewable Heat Incentive (RHI)

Following the commissioning of the project in August 2015, 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.

Heat meters were 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 seven 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 fuel oil, LPG and natural gas.



About Edge Renewables

Formed in 2011, 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

