

## District Heating Scheme

Herefordshire

# Case Study



This Duchy of Cornwall property had been neglected for decades. A multi million pound project has restored the unique buildings and surroundings. The project comprised of the renovation of a 17th century farmhouse plus the conversion of four barns into quality office, workshop and living accommodation. A wood chip boiler was installed to deliver the heating requirements to a district scheme. The scheme was completed in 2007 and was viewed by HRH The Prince of Wales.

### Project Type: Domestic Living

- 110 kW Wood Chip Boiler fully modulated chip boiler
- 198,000 kWh delivered per annum
- Sole heat source – no back up
- Fuel is blown into store and supplied by MWF de-ashing & automatic ignition features

### Feasibility, Design, Procurement and Project Management by MWF

#### Case Study Economics @ Spring 2011

Wood fuel boiler output	110	kW
Total installed cost of wood fuel system	£68,000	
Assumed seasonal efficiency	80.0%	
Annual maintenance costs	£850	/annum
Wood fuel costs delivered	£110	per tonne @30% moisture
Full load equivalent hours operation	1,800	hours/annum
Wood fuel consumption/annum	71.8	tonnes
Wood fuel costs/annum	£7,898	
RHI rebate	£12,001	
<b>Net wood fuel costs/annum</b>	<b>-£4,102</b>	
Carbon emissions	4,950	kg/yr - whole life cycle

#### RHI Rebate Calculations

	<i>Kwh</i>		
144,540	@	7.6 p	£10,985
	<i>Kwh</i>		
53,460	@	1.9 p	£1,016
<b>Total</b>			<b>£12,001</b>

<b>Verses Gas</b>			
Gas cost per kWh	3.20	p/kWh	
<b>Total gas cost/annum</b>	<b>£8,691</b>		
Annual saving with wood fuel	£12,794		
<b>Simple payback on net capital</b>	<b>5.3</b>	<b>years</b>	
Carbon emissions	53,460	kg/yr	
Carbon saving	48,510	kg/yr	

<b>Verses Oil</b>			
Oil cost per kWh	5.71	based on	50 p/litre
<b>Total oil cost/annum</b>	<b>£12,571</b>		
Annual saving with wood fuel	£16,674		
<b>Simple payback on net capital</b>	<b>4.1</b>	<b>years</b>	
Carbon emissions	69,300		
Carbon Savings	64,350	kg/yr	



Froiling Turbomatic Chip Boiler