

By Tim Pullen

Biomass Boilers

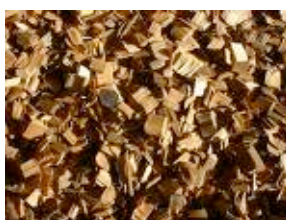
What is Biomass?

Biomass is a generic term that includes all plant material that can be burnt. So it includes wood but also things like straw, rape seed pellet, grain and flax.

Usually it means wood as either log, chip or pellet.



Logs are precisely that but modern log burners often need logs cut to specific size.



Wood chip is often the waste from forestry work, that is chipped to a specific size to enable better drying and easier handling.



Wood pellet is by far the most common biomass fuel as it offers the best calorific value (the amount of heat for each unit of fuel), is lightest by volume (because it is the driest) and is the easiest to handle. Pellet is wood dust - also often waste wood, forestry waste, sawdust from joinery works, old pallets and the like - formed under pressure to 6mm or 8mm diameter pellets.

Cost of Biomass Fuel

The cost of biomass fuel varies with the type and quantity purchased - from £35 per tonne for logs bought locally to £210 per tonne for good quality pellets bought in small quantities in 15kg bags.

The table below sets out typical cost as a comparison to traditional fuels.

<i>Fuel</i>	<i>Unit price</i>	<i>Boiler efficiency</i>	<i>Price per kWh heat output</i>	<i>CO2 per kWh</i>
Electricity	14p / kWh	100%	14.0p	0.43kg
Natural Gas	5.5p / kWh	85%	6.5p	0.19kg
Fuel Oil	55p / litre	85%	6.1p	0.26kg
LPG	57p / litre	93%	8.3p	0.21kg
Logs	1.2p / kWh	80%	1.5p	0
Wood Chip	1.9p / kWh	90%	2.1p	0
Wood Pellet (bulk)	3.7p / kWh	93%	4.0p	0
Wood Pellet (bagged)	4.5p / kWh	93%	4.8p	0

It is worth noting that the price of bulk wood pellet in 2005 was 2.7p per kWh. a rise of just 27% in 3 years, compared to over 80% rise in the price of heating oil. And the rise in wood pellet prices is slowing (even reversing in some areas) as more manufacturers enter the market. Similarly, the price of wood chip is tending to fall as the market for it expands and more producers enter the market.

Boiler Types & Costs

The range of types of burners is huge; from simple log-burning stoves to fully automated, industrial size wood chip or pellet boilers. To decide on which boiler is right for you there are 2 issues to consider; the type or fuel you want to use and the level of automation you want. A largely manually operated log-fired stove/boiler will cost around £2000 plus installation cost, while a fully automated wood pellet boiler with fuel storage and delivery system could cost £15,000.

Grants

The Low Carbon Build Program has ended and grants are no longer available from central Government. Some local authorities are still offering grants for some technologies (generally not biomass, though) and some suppliers are offering "grants". Beware of these as a cost comparison with a supplier NOT offering a grant may bring a surprising result! And they all attract VAT at 5%.