

BIOMASS HEATING

What is Biomass Heating?

Biomass heating is the combustion of biological material to generate useful heat. Biomass can be used for single room heating, home heating, hot water or district heating systems.

For single room heating, an open fire is the most common approach although this is the least efficient method as most of the heat goes up the chimney. Wood or pellet stoves are much better technologies.

Whole house heating can be achieved using a wood boiler and radiators. District heating systems generally involve a large woodchip boiler where hot water is pumped through underground pipes to heat several homes.

How is biomass produced?

Biomass can come from energy crops, forestry waste or industrial waste. Energy crops are grown specifically for use as fuel. Yields are much higher than can be achieved from woodland management because they make use of fast growing varieties and harvest them young.

Forestry waste is the residue from the clearing and management of woodland and forests. It is also possible to use the wood waste from industrial sites such as furniture manufacturers.

Types of fuel

Biomass can be purchased in a variety of forms depending on the requirements of your system. **Seasoned logs** can be used directly. They are cheaper than other types of fuel but will need splitting to a usable size so some manual labour is required. **Wood chips** are good for larger systems as the fuel can be automatically fed to the boiler via an auger and chips burn more efficiently than logs. Consistent supply quality can be a problem with logs and wood chips. Sawdust can be pressed into **pellets** which can be purchased in sacks or delivered in bulk. Pellets are very convenient and burn efficiently but are more expensive. Good suppliers make their pellets to European standards so consistent quality is easier to achieve. **Briquettes** are a log sized fuel made in the same way as pellets. They burn very efficiently but cost more than logs.

What is the environmental impact?

The environmental impact of burning wood depends on the source. All biomass gives off CO₂ when burnt but this is only as much CO₂ as it had absorbed when it was alive so as long as the biomass is replanted, this does not contribute to carbon emissions.

Energy crops require very little in the way of pesticides and herbicides and apart from the visual impact of growing coppice, in certain circumstances it could be regarded as beneficial for wildlife. This will, of course, depend on individual site characteristics. Using industrial wood waste avoids land filling and the use of woodland residues can make forests more accessible

Renewable Energy Information sheet



through better management. The impact of transporting and processing fuel needs to be considered but if the wood is from a local supplier, this only represents a small increase in emissions. Other pollutants such as SO₄ can all be produced from burning biomass but if the fuel is burnt properly these are minimised. Some areas of the UK are **smoke control areas**. Wood can only be burnt in these areas if the appliance has an exemption certificate.

Why don't we all use biomass?

To heat a well insulated house would require around 6 tonnes of dried wood per year. You would need 2 hectares of well managed woodland to produce this much annually. Energy crops have higher yields but still require significant land resources. Sources such as industrial waste are limited. Because of this, supplies of wood in some areas are scarce and prices are high.

How much does it cost?

A wood burning stove would cost around £1000-2000 installed. A pellet boiler for heating the whole house would cost around £8000-10000. Cost of fuel can be lower than oil or electric heating but is likely to be higher than mains gas unless you have your own supplies.

Are there any grants or incentives available to help with the costs?

The new Renewable Heat Incentive (RHI) was introduced in 2011 for non-domestic installations and is expected to be extended to domestic installations later in 2012. This scheme pays a fixed rate per kilowatt hour of heat generated for qualifying technologies. Up until 31st March 2012 there is the Renewable Heat Premium Payment (RHPP) but only if you don't currently have gas heating. For details of these schemes, download the **Financial Incentives information sheet** from our website.

Where can I find an installer?

For information about accredited installers within the Yorkshire and Humber area visit www.yhmp.org

Trade association

The trade association for the Biomass industry, is the Renewable Energy Association (REA). Visit the REA website at <http://www.r-e-a.net>.

A variety of low carbon energy calculators, which can help you calculate everything from your carbon footprint to the wind power and solar potentials of your home or workplace, can be found at www.energysavingtrust.co.uk

The ATC promotes energy efficiency – it is cheaper to save energy than produce it.