

### What is Biomass?

Biomass may include any fuel derived from organic matter, such as wood, oil crops, and agricultural & animal residues. Biomass can also be termed as biofuel, biodiesel, and biogas, and can be used for heat production, electricity generation and fuelling vehicles using a wide variety of conversion technologies. Biomass is renewable only when dedicated crops or forests are used or where replanting occurs. The carbon absorbed during growth is considered to be equal to the emissions during combustion.

### What are Biomass Pellets?

Biomass pellets are produced from grinding down wood, energy crops and crop byproducts such as straw. The wood may include short rotation coppice, thinnings from managed woodland or other forestry material. The quality of the pellet will vary significantly depending on the quality of the original wood/crop etc. Most of the pellets currently burned in the UK are imported from the continent including Eastern Europe. These pellets are frequently manufactured from sawdust created at sawmills.

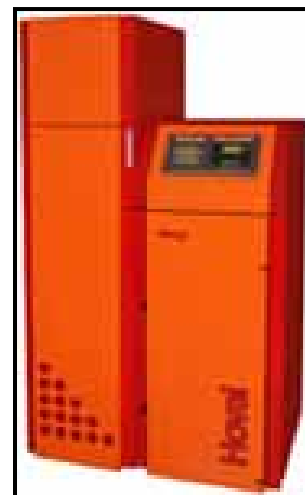


### Pellet or Chip?

Manufacturing wood chips requires comparatively little specialist equipment and is therefore perfect for 'on site' production and consumption. For example joinery companies are saving on their heating bills and avoiding the landfill tax by making wood chips of their off-cuts on-site and burning them in wood chip boilers to provide heating for their factories. Wood chips are cheaper than pellets per unit of energy delivered, however they are not always suitable for domestic or intensive heating uses since they require considerably more storage space and their energy content is less predictable. In this instance Pellets is likely to be the preferable product.

### How does it work?

There are two main types of pellet appliance available, these are smaller-scale space heaters and larger scale water heaters suitable for a range of uses from top-up space heating to complete space and water heating. Pellet stoves are far more efficient than open fires or wood burning stoves. Pellet boilers work in much the same way as "conventional" gas or oil boilers and are able to fire up automatically and be controlled by time clocks etc. The ash created will be very small (<2% of total fuel burnt) provided the pellet is of high enough quality.



The pellet boiler can be fed from an integrated hopper which may be filled with bagged fuel or an external hopper which could be bulk filled. Since pellets "flow", there is minimum regular attention required.

### Where will it work?

Pellet stoves and boilers have universal applications. The boiler units are not dissimilar in size to standard oil boilers but are larger than comparable gas condensing boilers, however hopper space creates a larger installation space requirement.

### Heat Generation

There is a vast array of domestic and commercial pellet boilers available with outputs ranging from 8kW to 1000kW

## Regulations

The installation of Pellet Boilers has to comply with Building Regulations, and be installed by an approved installer. Planning permission is not normally required for domestic installations, although Listed Building Consent and or Conservation Area Consent will be required if applicable. The location and height of the flue may mean that planning consent has to be obtained from your local authority. If you live in a smokeless fuel zone then wood can only be burnt in certain exempted appliances.

## Income/Savings

There are significant savings to be obtained in terms of CO<sup>2</sup> emissions - up to 7.4 tonnes per year when a wood boiler replaces an oil fired system (*Energy Savings Trust*). Fuel cost savings are not so substantial and wood pellets may cost more than gas on a kW for kW basis. However savings can be achieved if electricity or oil are the only meaningful alternatives.

Wood costs often depend on the distance from your home to a wood supplier and whether you can buy and store wood in large quantities. If you have your own supply of wood fuel then this can significantly reduce your costs. There are pellet suppliers in Lincolnshire and Nottinghamshire which provide nationwide supplies.

## Renewable Heat Incentive

The scheme, to be introduced on 1<sup>st</sup> April 2011 provides for payments not dissimilar to FITs (Feed-in Tariffs) for electricity. The scheme will create a significant shift in the cost/benefit of smaller scale schemes with additional income now being generated from green power generation. Examples of proposed tariffs are shown below. For the smaller and medium installations (up to 500kW) the tariff will be paid on the deemed amount of heat that is used rather than using metering. For more information see the RHI Fact Sheet.

Table of RHI tariff Technology	Scale	Proposed tariff (p/kWh)	Years
Solid Biomass	≤45kW	9	15
Solid Biomass	45- 500kW	6.5	15
Solid Biomass	>500kW	1.6-2.5	15

## Capital Costs

Straightforward stoves cost around £2000-£4000 including installation. A typical automatically fed boiler for an average home costs £5,000-£14,000 including installation and installing a suitable flue.

## Grants

Grants for domestic and community installations are available through the Low Carbons Building Programme.



**Scoping**                      **Feasibility**                      **Project Management**                      **Planning**  
**Environmental Compliance**                      **Design**                      **Funding**                      **Delivery**

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