

BIOMASS BOILERS



A **GREENER** WAY TO SAVE MONEY...



BENEFITS OF BIOMASS HEATING

A biomass boiler is a direct replacement for a conventional gas, oil or LPG boiler. It can be used to heat water, steam or thermal oil to be used in a heating system or in a process. They run on wood derived fuel which is normally either wood pellet or wood chip, although log is a fairly common fuel as well.

Fuel is stored in a hopper (except for log systems) and transported from the hopper to the boiler by suction, screw auger, or conveyor. It is ignited automatically and the boiler controls the rate of fuel feed according to the heat demand.

As the fuel is combusted, the heat passes through a heat exchanger which transfers the heat to the water within the system. Often efficiencies in excess of 90% are achieved during this process. The boiler control automates the oxygen levels and temperatures to achieve the highest possible efficiencies.

SAVE MONEY

It costs up to 50% less than oil or LPG to run your biomass heating system

GET PAID MONEY

Your system can qualify for the Government's Renewable Heat Incentive (RHI) meaning that you can get paid for the heat that you use and produce. This lasts for 20 years on commercial systems and 7 years on domestic systems.

RETURN ON INVESTMENT

Your investment into a biomass system will typically pay back in under 5 years and then continue to provide an income from the RHI and savings over your previous fuel type.

BE GREEN

Biomass heating is virtually carbon neutral and therefore reduces your building's carbon footprint. If your organisation is subject to the Carbon Reduction Commitment (CRC) then switching to biomass can reduce the charges associated with the Climate Change Levy.

FUEL SECURITY

Biomass fuel is usually available locally and it is a renewable fuel. This means that you will be reducing the risks associated with security of fuel supply from the energy providers. The fuel is grown in the UK, so you are also supporting local jobs and the economy. There are more and more biomass fuel suppliers opening up every month, so competition is fierce and pricing is very competitive. The UK has a huge oversupply of biomass fuel, so no imports are needed, and availability is superb.

FUEL COST

The efficiency of a boiler can have a significant effect on your fuel cost. A biomass boiler can achieve efficiencies of over 90%, so if you are replacing an old inefficient boiler, just the process of doing that will save you in running costs. Typically we find that old boilers have efficiencies less than 80%, so the table opposite shows typical costs of running on various fuel types:



Fuel Type	Price	Cost per kWh
Oil	65p per litre	6.6p
LPG (propane)	45p per litre	6.9p
Mains Gas	5p per kWh	5p
Electric	14p per kWh	14p
Coal	£350 per tonne	4.4p
Wood Pellets	£200 per tonne (bulk)	4.0p
Wood Pellets	£250 per tonne	4.5p
Wood Chip (25% moisture content)	£100 per tonne	2.7p
Log (35% moisture content)	£75 per tonne	2.4

OUR EXPERIENCE

Generate Green have installed biomass heating systems into a wide range of premises:

- Care Homes
- Hotels
- Country Houses
- Dairy Farms
- District Heating systems
- Domestic Houses
- Schools
- Factories
- Leisure Centres
- Holiday Parks
- Swimming pools
- Offices
- Council Offices



THE RENEWABLE HEAT INCENTIVE (RHI)

The Renewable Heat Incentive (RHI) is a UK Government scheme set up to encourage uptake of renewable heat technologies amongst householders, communities and businesses through financial incentives. It is the first of its kind in the world and the UK Government expects the RHI to contribute towards the 2020 ambition of 12% of heating coming from renewable sources. The scheme is administered by OFGEM.

NON DOMESTIC RHI

Eligible applicants join a tariff that corresponds to their biomass heating capacity. Once registered onto the tariff it is fixed for 20 years but will increase by RPI each year. In other words, the tariff can go up, but not down once you are registered on it. The tariff will pay out for every kWh of heat produced and recorded on the heat meter.

As more and more applicants are accepted onto the scheme, the tariff will drop, but only for new applicants. This means that once you are on the tariff, you are secure for 20 years, but delaying your decision to go ahead with a biomass installation could cost you if the tariff drops in that time. The tariff is reviewed every quarter.

DOMESTIC RHI

The RHI for homeowners is based on the deemed heat use of your home. This figure is calculated by an energy assessor and shown on your Energy Performance Certificate (EPC) as a value in kWh for space heating and hot water. These two figures are added together (providing that your biomass system is configured to provide heating and hot water), and the tariff is applied to that total figure.

In other words if your space heating requirement is 50,000 kWh and your hot water requirement is 3,000 kWh then the combination of the two (53,000 kWh) is multiplied by the current tariff rate, e.g:

Deemed heat use:	53,000 kWh
Example tariff:	10.98p (correct as of 16 Jan 2015)
RHI income:	£5,819.40 per annum

This amount is paid to you every year divided into 4 equal quarterly payments, for a total duration of 7 years. The tariff will benefit from any increase in RPI, but will not decrease once you are accepted onto the scheme.

IMPORTANT RHI INFORMATION

The RHI is linked to your boiler serial number. This means that if your boiler irreparably breaks down, then your RHI will be lost. It is therefore essential that you buy a high quality boiler with a good warranty term. All boilers that Generate Green offer are leaders in the biomass market. We work with Windhager (Austrian), Froling (Austrian), Hargassner (Austrian), and Wood Energy Solutions (Irish) to bring you the best system, carefully designed to last, and we also offer up to 20 years servicing, maintenance and warranty packages.

If you move premises/home, your boiler could move with you. The RHI is fully portable which means that you can continue to receive the tariff at the same rate in your new location. With most commercial systems we leave your existing fossil fuel system in place as a backup when we fit biomass, so the new owner can still have a fully functioning heating system if you remove your biomass boiler!



GETTING IT RIGHT

A biomass heating system needs to be designed carefully to ensure that it not only delivers the required heat, but it runs efficiently all year round. There is also a balance to be struck between heat demand, cost of installation, running costs and the income received from the RHI.

Our biomass engineers have all been trained by the manufacturers we work with to fully understand the intricacies of each boiler and fuel type so that we can ensure we are making the best possible recommendation for you. It is not as simple as replacing like for like in boiler size as most of the time we find existing fossil fuel systems have not been sized correctly for the building they supply. A wrongly sized biomass boiler will work inefficiently if too big, or may be unable to meet peak demand if sized too small.

To ensure that we get it right, our engineers conduct a full heat loss calculation and biomass design on your building analysing:

- Type of construction
- Insulating properties of the materials
- Number of occupants
- Type of heating system (radiators, underfloor etc)
- Hot water demand
- Peak load demand
- Energy costs
- Future expansion
- Available space
- Fuel storage requirements

Once we have a design, we work closely with the chosen manufacturer to produce CAD drawings, schematics, simulations and return on investment forecasts so that you can be secure in the knowledge that your system is right for you.

In addition, at commissioning stage a representative from the manufacturer often attends site to sign off the boiler and check that the installation meets the manufacturer's required standard, and therefore warranty conditions.

BIOMASS FUEL OPTIONS

Generate Green offer Wood Chip, Wood Pellet and Log boilers. Which fuel is right for you depends on a number of factors such as:

- Local availability of fuel
- Automation requirements
- Budget
- Storage space
- Delivery access

Probably the most important factor when deciding on a fuel type is quality. If you are using your own wood supply such as felled logs, or home made woodchip, then it is essential that you check the quality of the fuel before using it as otherwise it may reduce the life of your boiler or cause problems with the fuel feed system.



WOOD PELLETS

Wood pellets are the most consistent and popular fuel type. They are manufactured to a required standard (EN / EN Plus) which means that you know that the pellets will have been tested to ensure the right moisture content, consistency and therefore calorific value (the amount of energy released by a given quantity of fuel). Wood pellets are the most compact fuel type, requiring less storage and therefore deliveries are not as frequent. Pellet boilers have a high degree of automation requiring very little if any interaction on a day to day basis. Fuel feed is normally achieved by a suction (vacuum) system through to the boiler.



WOOD CHIP

Wood chip has the least calorific value of the fuel types and also requires a much larger storage space. It is however quite cheap compared to wood pellets, so if you have the space to store it then it can be a very cost effective fuel.

Estates with their own wood supply sometimes choose to produce their own wood chip. Wood chip needs to be dried down to the right moisture content (typically 25%) to use in most boilers, but there are some boilers that can be used with 'wet chip' which has a typical moisture content of 50%.

Again similarly to wood pellet, fuel feed systems are can automated requiring little or no interaction. Fuel is typically fed by means of an auger and a rotary or hydraulic ram mechanism.



LOG

A very manual process which due to the nature of how log boilers work, it also requires a great deal more infrastructure than a pellet or wood chip boiler. You should only consider log if you have your own consistent supply of good quality seasoned logs (ideally 1-2 years). Burning off-cuts and waste wood is unlikely to produce enough heat to be effective.

Logs have to be manually cut and stacked into the boiler on a daily basis. Some customers choose to have a pellet module attached to their log boiler as a backup, but this system should be run on log the majority of the time.

MODULAR SOLUTIONS

Where customers do not have the internal space for a biomass heating system, Generate Green offer a range of outdoor solutions ranging from complete standalone outdoor boilers and pellet stores, through to sheds, containers and heat cabins.

We typically build these off site and deliver them to you fully kitted out and ready to deliver heat the moment it is connected to your system. If you move premises in the future it is easy to take it with you!

We offer aesthetic options such as wood cladding, signage, display sides (glazed sides so that your customers can see your green heating system in operation), or vinyl wrapping with graphics.

Our top of the range module comes with a comprehensive warranty package:

- 25 year thermal integrity warranty
- 25 year structural integrity module
- 20 year boiler warranty (subject to a service and maintenance contract)
- 40 year paint coating warranty (30 years for coastal applications)
- Transferable warranty if module is sold



THE GENERATE GREEN PROJECT PROCESS

1 INITIAL SURVEY

One of our trained surveyors will visit to discuss your needs and to survey the site and system requirements. They will make a boiler recommendation based on your needs, fuel availability and space. They will talk you through the entire process, discuss how the equipment works, provide an indication of price and explain the RHI in detail.

2 PROPOSAL

Following our site survey we will send you a full proposal detailing the exact equipment, costs, scheme of works and any exceptions. It will also have our terms and conditions attached and payment terms. Once you are happy with the proposal, simply sign and return it to us and we book you in for installation.

If you require finance, be that personal, asset or corporate loan, then ask to speak to one of our Business Managers who would be happy to talk you through the options and arrange for a quotation to be sent to you.

3 PROJECT TIMESCALES

We understand that you require as little disruption as possible during installation. We work closely with you to ensure that any interruption is kept to a minimum and the work is completed in the shortest possible time.

4 DESIGN

Our design team will prepare a full design specification of your system, and schematics for connection onto your existing heating system. Our designs will be presented to you so that you have a full understanding of the scope of works.

5 INSTALLATION

We commence any preparatory engineering work as quickly as practicable such as laying concrete bases or installing an underground heat main. Once complete, your biomass boiler will be delivered, located and installed to the highest quality standard. We pride ourselves on the quality of our work, and our installation teams are polite, courteous and respectful.

6 HANDOVER

We show you how to operate and conduct occasional checks on your new biomass system. We also show you how to take meter readings (if required) for the Renewable heat Incentive.

7 RHI APPLICATION

We complete your RHI application to OFGEM for you, and show you how to submit readings online for RHI payments.

8 WARRANTY, SERVICING & MAINTENANCE

Along with our standard warranty package, we offer ongoing maintenance and servicing packages to ensure that your biomass system performs efficiently well into the future.

ABOUT OUR BOILERS

THE HARGASSNER RANGE

An award winning range of boilers built to the highest quality standards at the state of the art Hargassner factory in Weng im Innkries, Austria. Hargassner have been building Biomass Boilers since 1984 have now have in excess of 70,000 boilers operating globally.

Hargassner provide boilers for small homes right up to large scale commercial systems. Their warranty offering is second to none, testament to Hargassner's build quality and reliability.

The range includes pellet boilers, wood chip boilers and log gasification boilers.

THE FROLING RANGE

Founded in 1961 Froling are one of the oldest and most respected biomass boiler manufacturers globally. With a full product range from 8kW to 500kW, covering log, pellet, wood chip or even a combination of two fuel types, Froling offer a boiler to suit most needs.

Froling build to the highest quality standards and their T4 wood chip boiler has won the 'Best Product of the Year' award at the 2013 Plus X Awards.

THE WINDHAGER RANGE

For more than 85 years the name Windhager has been inseparably linked and synonymous with boiler technology of the highest quality 'Made in Austria'. What started as a small metalworking shop in 1921 is now one of the biggest and most important companies in the industry and one of the leading manufacturers of biomass central heating systems in Europe.

Known best for their pellet boilers, Windhager concentrate on the smaller domestic range of boilers and have a UK headquarters in Gloucestershire. With their innovative control technology, Windhager boilers can be fitted without the need for a buffer tank if space is an issue.

THE WOOD ENERGY SOLUTIONS RANGE

Wood Energy Solutions (WES) are the largest dedicated biomass manufacturer in the UK and Ireland. They have won several awards including the Ibec Environment Awards 2013/2014. Specialising purely in wood pellet boilers, WES offer a range from 15 kW to 199 kW including an innovative outdoor range of boilers that require no protection from the elements.

WES offer value for money whilst retaining a high quality of build and innovation. They also manufacture the unique 'Dairy Pod' a high temperature (95°C) biomass water heater designed to provide low cost hot water for dairy farms.





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