

## Fact Sheet - Biomass

Biomass has proved to be a robust and reliable technology. Its popularity in Britain declined over the last century with the use of fossil fuels but with the introduction of the renewable heat incentive (RHI) there has been a rapid resurgence towards biomass. The government's objectives are to lower carbon emissions and secure domestic energy sources, but the benefits of biomass can be felt at a more local level. Our forests are being managed more carefully now and it is possible to make a profit from thinning and a new network of wood fuel suppliers that stretches across the UK has sprung up providing rural employment. The appeal of biomass goes beyond the subsidy.



The RHI is a government scheme that will pay you for every unit of renewable heat used. In the past there has been support for the capital cost of a biomass boiler, but now the subsidy is structured to last 20 years for a non-domestic application and 7 years for single homes. The Government expects to be generating 12% of the UK's heat requirements by 2020.

To qualify for the non-domestic RHI a project will have to serve two or more properties or a commercial premise (normally determined by paying business rates) or a commercial process that has a heat requirement. Details of the Non-Domestic RHI rates can be found at: <https://www.ofgem.gov.uk/environmental-programmes/renewable-heat-incentive-rhi/tariffs-and-payments>

The Domestic RHI was launched in April 2014. Aimed at single homes this scheme offers a higher rate than the non-domestic but for a shorter period of time. Details of the Domestic RHI can be found at: <https://www.ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive/about-domestic-rhi/tariffs-and-payments-domestic-renewable-heat-incentive>

The most common biomass fuels are wood chip and pellets. These are now available almost anywhere in the country, but they are not the only fuel that biomass boilers can take. Straw, brash, waste wood, coppice and miscanthus have been used to generate heat. It is important to properly consider what type of fuel you might be using before buying a boiler, as there design and requirements can vary greatly.

District heating schemes work by a centralised boiler that feeds individual houses via insulated piping, a heat exchanger is required between the heat transport piping and the internal plumbing; essentially they are just like a large central heating system.

The main barriers to biomass installations are space requirements and fuel delivery. The boiler, accumulator tank and fuel store requires a large amount of space compared to a traditional fossil fuel boiler. Feasibly locations are further limited by the need for delivery vehicles to access the premises.

**How can biomass be part of a rural business?**

**A:** There are a number of different scales of biomass installation available, from small 5kW log fired stoves in individual houses to large district heating systems (up to 500kW or more) that supply multiple properties. Generated heat could also be supplied to a near neighbouring major heat use such as a grain dryer, poultry shed, or large scale greenhouse.

**Q: Can a biomass boiler be connected to my existing heating system?**

**A:** Yes, although because most biomass boilers operate at a higher temperature and pressure than fossil fuelled boilers, plate heat exchangers are usually installed between the biomass boiler and the existing heating system.

**Q: Do I need Planning Permission and/or a Building Warrant to install a biomass system?**

**A:** While Planning Permission is not required for a boiler, it may be required for a boiler house, fuel silo and boiler flue. However, if a boiler is to be installed where there was not previously a boiler then a building warrant will be needed.

**Q: How much do biomass systems cost?**

**A:** Biomass systems are expensive in comparison to conventional gas or oil boilers. Additional capital costs can arise from the construction of boiler houses and fuel silos and the need for fuel feed systems and buffer tanks. Biomass boilers are also more expensive than conventional boilers. In broad terms, a complete biomass boiler system can cost up to ten times that of an equivalent fossil fuelled system.

**Q: What are the likely payback periods?**

**A:** The greater capital cost of a biomass system is usually offset by the lower costs of biomass fuels which are consistently less than fuel oils, although if you are on the mains gas network the cost savings will be much less than those compared to the replacement of a gas or oil system. In addition, biomass systems earn an annual income in the form of RHI payments. A typical payback period for a biomass boiler is between 5 and 10 years, but this figure can vary considerably depending on the quantities of heat being generated and the capital costs of the installation.

**Q: How reliable are biomass boilers and do I need another boiler as a backup?**

**A:** A properly designed and installed biomass boiler should be as reliable as a fossil fuelled boiler, although biomass boilers work most efficiently and tend to be most reliable when they are in continuous operation. Some biomass boilers are very sensitive to fuel quality and so it is vital to ensure that the correct equipment is matched to the available fuel. It is also important that the fuel is of consistent quality in terms of moisture content, chip size, etc. However, because a biomass boiler is rarely sized to meet peak heating loads, a top-up boiler can be used to help meet peak loads. If the biomass system is replacing a conventional boiler, the old boiler can often be retained for use as a top-up system.

**Q: How do I qualify for the RHI?**

**A:** The RHI application process is complicated and can only be finally completed once a boiler is commissioned and operational. The process involves filling in an application form which can be done online by creating an account on the RHI Register. The application must be supported by various documentation and evidence including: a commissioning certificate or commissioning report for the installation; a schematic diagram of the installation; evidence of non-single domestic status such as a business rates bill or multiple council tax bills; and photos of the nameplate of the installation and heat meters clearly showing the capacities and serial numbers.

**Q: Where can I find a list of biomass boiler suppliers and installers?**

**A:** The Renewable Energy Association:  
<http://www.r-e-a.net/membership/directory>