

Discover renewable energy

Heating your home with biomass



Biomass heating

For centuries, people have been generating their own energy from organic matter like wood. And while open fires may no longer be everyday household fixtures, today's wood-burning boilers and stoves can offer a practical and efficient way to heat your home. As well as saving you up to £350 a year on heating bills, biomass is far kinder to the environment than fossil fuels like gas, oil or coal.

The energy produced by organic matter is also known as **bioenergy** and the fuels themselves as **biomass**.

Unlike fossil fuels, which have taken millions of years to form, biomass fuel is made of far more recent materials like plants and untreated wood or wood waste. This means that supplies can be replenished quickly and easily, and in many cases using biomass will reduce the amount of wood waste going to landfill.



Could biomass heating work for your home?

Before looking in detail at the kind of stoves, boilers and fuel you could use to heat your home with biomass, it's worth making sure your house is suitable. And that means asking yourself the following questions:

- Do you have a local biomass supplier? Ideally you should source your fuel locally.
- If you're considering a biomass boiler, do you have enough space for the boiler itself, and enough room around it to load the fuel, as well as space to store the fuel?
- Do you have a chimney, and if so, is it lined with vent material that's designed for wood-fuel appliances? If not, then chimneys can be fitted with a lined flue to carry smoke from appliance to chimney; there must also be sufficient ventilation for the stove or boiler to operate properly.

But don't feel you need to work out all this on your own. For guidance on the above, call your nearest Energy Saving Trust advice centre for free on **0800 512 012**.

Renewable energy is worth your effort

Renewable energy technologies like biomass heating systems are a way for you to save money over the long term and help prevent climate change. They can work alongside – and help you use less – energy generated from fossil fuels such as gas, oil and coal. And unlike fossil fuels they produce little or no net carbon dioxide (CO₂): the harmful gas that's one of the biggest causes of climate change.



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Choosing the right fuel

To heat your home with biomass, you'll need a regular supply of fuel: logs, wood chips or pellets. While logs and wood chips are cheaper, wood pellets are a more compact form of energy, so they require less storage space.

The moisture content of your fuel is an important consideration. Lots of moisture takes time to burn off, making it harder for the fuel to burn fully. Fuels with lower moisture content, such as wood pellets, produce energy in a more efficient way, and full combustion makes for a cleaner process – without producing harmful by-products like carbon monoxide.

The type of wood fuel you'll need also depends on the type of boiler or stove that you buy.

Local benefits

Heating your home with biomass can be good for both the environment and your local economy. Using a local fuel supplier will not only keep costs down, but will also have a positive effect in terms of local investment and employment. What's more, by burning biomass you're reducing the wastage of products that might otherwise be clogging up a landfill site.

Why is biomass good for the environment?

Oil, gas and coal release lots of harmful carbon dioxide (CO₂) as they heat your home. Although biomass produces CO₂ as well, it only releases the same amount that it absorbed whilst growing. We call this a **carbon neutral process**: a great reason for using biomass and a workable way to help prevent climate change.



Chips



Logs



Pellets



Better fuel for transport

Another source of bioenergy is biofuel, which is most commonly used as environmentally-friendly fuel for transport. Unlike biomass, biofuels are made from animal wastes, industrial and food-processing by-products – and high-energy crops like rape, sugar cane and maize.

Choosing the right appliance


There are two main ways of using biomass to heat your home: you can use a stove to heat an individual room, or a boiler that will connect to your central heating and hot water systems.



Stand-alone wood-burning stoves can produce 6-12kW (kilowatts) of heat at any one point in time and can generally be fuelled by either logs or pellets. If, however, you choose an 'automatic-feed' stove that gives itself a regular top-up of fuel, then only pellets are suitable.

Normally, wood-burning stoves are designed to go in the living room of a house where they can provide extra heating – and look

good too. Although many only act as room heaters, higher-power versions can also be fitted with their own back boiler to provide hot water.

A photograph of a smiling couple embracing in a home setting. The woman is wearing a light blue cable-knit sweater and jeans, and the man is wearing a dark green zip-up jacket. They are both looking towards the camera with warm expressions.

Wood-burning boilers have more work to do and therefore need to generate higher levels of heat than stoves: a typical domestic system would be 15kW or more. There are lots of different kinds on the market, with different versions taking different wood fuels.

Log-fuelled boilers have to be topped up manually and will need plenty of home storage space for the logs.

Automatic-feed boilers can take either wood chips or pellets – or sometimes both – and come with their own ‘hopper’ where the top-up fuel is stored. But as wood chips are less compact than pellets, bear in mind that they need more hopper space than pellets between automatic top-ups.

The Energy Saving Trust recommends that you choose an accredited biomass product. To see a list of accredited products, visit www.lowcarbonbuildings.org.uk.

More things to bear in mind when buying an appliance

- Is your home in a Smokeless Zone? If so, then – under the Clean Air Act – you’ll need to buy an ‘exempted’ appliance to burn wood. (To find out if you live in a Smokeless Zone, speak to your local council’s environmental health department.)
- Make sure you find a properly accredited installer to fit your appliance in your home. Find accredited installers that operate in your area by visiting www.lowcarbonbuildings.org.uk.
- You’ll need to check with your local authority planning department before a flue is fitted, particularly if your property is a listed building or in an area of outstanding natural beauty.

For free, impartial advice on buying and installing a wood-burning appliance, call your nearest Energy Saving Trust advice centre on freephone 0800 512 012



How the Energy Saving Trust can help

The Energy Saving Trust is one of the UK's leading organisations set up to address the damaging effects of climate change. We aim to cut emissions of carbon dioxide (CO₂) – the main greenhouse gas causing climate change – by promoting the sustainable and efficient use of energy. And we want to make it easy for everyone to take action to save energy and help prevent climate change – by offering free, impartial advice.

So, if you're interested in using renewable energy in your home, call your nearest Energy Saving Trust advice centre on **freephone 0800 512 012**.

Our advisors will give you one-to-one advice on what's practical for your home, explain any technical or planning issues and put you in touch with a local, accredited installer. We can even tell you about grants and offers available to help with your planned home energy improvements.

And remember: there are lots of other simple ways to save energy in your everyday life, many of which won't cost you a penny. Again, we're here to help on **0800 512 012**, with more free tips online at **www.energysavingtrust.org.uk**.

How much will it cost to heat your home with biomass?

Initial outlay

The cost of the system you buy depends on its type and size. To buy and install a **stand-alone stove**, you're looking at paying **around £3,000**, while a typical **wood-pellet boiler** can cost **from £5,000 to £11,000** – covering appliances, installation costs and getting the right chimney flue fitted.

If you're planning to buy a biomass stove or boiler, remember to shop around and get at least three quotes.

Running costs

Unlike other forms of renewable energy – like solar power from the sun – biomass heating systems mean you have to pay for your fuel. However, the nearer you live to your fuel supplier, the cheaper the logs, chips or pellets can be: reducing your costs considerably. And as a general rule, the cost reduces when you buy in larger quantities, e.g. over a tonne at a time.

How much will you save?

A detached home, in an area off the gas network, could save **around £300 to £350 a year** on heating bills by using a biomass boiler. The same household could also save **from six to seven tonnes** of CO₂ every year. That's around the same amount that's created by the average UK home.

Find out even more online

Energy Saving Trust – www.energysavingtrust.org.uk

Renewable Energy Association – www.r-e-a.net

REAL Assurance Scheme – www.realassurance.org.uk/

Information on wood fuel and local suppliers of fuel and systems – www.nef.org.uk/logpile



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