

Heat from wood

MEA factsheet #2d



Using wood for domestic heating

Wood has been burned as a source of heat ever since the ancestors of modern humans first learned how to control fire about 1.5 million years ago. Today, as we look for environmentally sustainable ways to produce heat, wood has taken on a new significance because it is renewable, and (depending on how it is processed & where it comes from) can be virtually carbon neutral: the CO₂ released by burning wood is equal to the amount trapped by the tree as it grew.

It is also the cheapest form of renewable energy to install, with prices from about £300 for a small domestic wood burning stove to about £3500 for a much larger boiler system. It is also hoped that from April 2011, log and pellet fuelled boiler systems will pay you for the heat you produce under the Renewable Heat Incentives (RHI) programme. RHIs were approved in principle by the previous government with details to be finalised, but as with any spending proposals this may now change. However, if implemented, RHI would be a world first for the UK. It would stimulate the whole renewable heat industry and create new jobs. A similar incentive, Feed-In Tariffs (FITs) already pays participants for energy from PV solar panels, wind turbines, anaerobic digesters and hydroelectric technologies and also enables selling back surplus energy to the grid.

Fire technology

Open fires are a traditional feature of houses in the UK, but for domestic heating the most efficient way to generate heat from wood is by using a well maintained wood burning stove.

Open fires are the least energy efficient way of using wood for heating; they typically operate at 15-20% efficiency – meaning that only 15-20% of the heat generated goes back into the room while 80-85% is lost up the chimney.



Of the heat from an open fire, only 15-20% of it is used to heat the room; the rest goes right up the chimney.



Wood burning stoves are much more efficient. 75% of their heat will warm the room.



By comparison a wood burning stove works at around 75% efficiency so one log in the wood burner produces as much heat as 4 logs on the open fire.

An alternative to a log burning stove is a pellet stove. These use pellets for fuel, typically made of compressed sawdust or other types of plant biomass. Pellet stoves cost more to buy than a wood burning stove, but require much less maintenance and can be set to run automatically. The price of pellets is competitive with logs as a fuel source, and both pellets and logs are considerably less expensive than coal or oil, and can be practically carbon neutral. Better savings can be achieved if you are close to a wood fuel supplier, if you have space to store larger quantities of wood or if you have your own supply of logs

Many wood burners and pellet stoves are fitted with a back boiler which can be used for hot water or plumbed into the radiators or underfloor heating system. Pellet and log fuelled boilers are also available.

To maximise fuel efficiency, any firewood should ideally have been stored somewhere dry for at least a year before burning, to dry the wood out. Green wood has a much lower heating capacity than dry wood as some of the heat is used to drive off the moisture in the wood. Beech, oak and ash are all excellent as wood fuel if they have been properly dried.

When selecting and preparing logs for burning the ideal size of log for most efficient combustion is less than 10 centimetres thick – bigger logs should be split down to this size.

Cost effectiveness

The cost effectiveness of installing wood heating or hot water systems depends on which fuel you replace it with. If you currently use solid fuel, oil or electricity you can save on your fuel costs by switching to wood. If you switch from gas to wood you may initially pay more for your fuel.

These figures are of course based on current fuel prices and do not take into account the payments under the RHI that are due to come into effect in April 2011. Furthermore, gas and electricity costs are expected to increase dramatically in the next few years as fossil fuels become increasingly scarce whereas wood costs are expected to remain the same or even decrease in real terms as more people decide to use it. These factors, combined with the RHI payments, will make switching from gas to renewable sources much more attractive in the medium to long term.

Assuming the RHI scheme does go ahead as planned, any eligible system installed after 15th July 2009 will qualify for the incentives from April 2011. You will earn an amount based on an estimate of how much heat your system can produce. The tariffs will be index linked to allow for inflation. The payments will be made annually for fifteen years,



Further Information:

General information

Energy Saving Trust

0800 512012 energysavingtrust.org.uk

Centre for Alternative Technology

01654 705950 cat.org.uk

The Logpile

nef.org.uk/logpile/index.htm

General information and directories of fuel and equipment suppliers

Stove and Boiler Suppliers

Euroheat Distributors Ltd

01885 491112 euroheat.co.uk

Clearview Stoves

01588 650123 clearviewstoves.com

Continental Fires Ltd

01694 724199 continentalfires.com

The Organic Energy Company

0845 458 4076 organicenergy.co.uk

Pellet and wood suppliers

Midlands Wood Fuel Ltd

01952 510001 wood-fuel.co.uk

Please note this is not an exhaustive list and is not an implied recommendation of any product or service

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